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AMERICAN
JOURNAL OF SURGERY

VOL. XXXI. JUNE, 1917 No. 6.

CLINICAL OBSERVATIONS ON THE TREATMENT OF PROSTATIC OBSTRUCTION.*

HENRY G. BUGBEE, M. D., F. A. C. S.
NEW YORK CITY.

Probably in no other line of surgical procedure has such real progress been made during the past decade as in the treatment of prostatic obstruction.

It was to be expected that general surgical technic, which has led to the advancement in the surgical treatment of other regions of the body, when combined with our precise methods of study of the urinary tract, would bring about radical changes in local operative procedures. This has happened, and the results speak for themselves.

At all times and in all conditions where advancement has been rapid, the drift of thought is apt to be directed in a channel which tends to be become narrow, unless we occasionally stop to recapitulate.

It is my desire to do this briefly, and my plea is for the treatment of the "prostatic" as an individual, not as a class.

When we speak of prostatic obstruction we think of a man of middle life or advanced years who is presenting some difficulty of urination, due to a change in the consistency or conformation, or both, of the prostate gland.

The cases of prostatic obstruction in the young man are inflammatory, or due to congestion, and often associated with venereal disease. This type will be seen less often as the treatment of the primary disease is being carried out in a more and more intelligent and thorough manner.

We will say, then, that a prostatic is a man of middle life or advanced years. He has reached the point where certain physiological and pathological changes have taken and are taking place. The extent of these changes must vary with the individual. We must consider his heredity; his history to date, both physical and environmental; his present status of mind and body, and what his future has in store for him.

One individual shows little or no physical deterioration, but mental changes; another is at the height of mental development, at the expense of physical health; others are phlegmatic physically and mentally.

Few men reach middle life retaining physical vigor. With advancing years life becomes more confining, the body is called upon for more and more of its reserve, until this gives out and the capital is drawn upon, with tissue changes in direct proportion to the daily restoration possible, or the partial "come-back" of an occasional vacation.

The accompaniments of affluence,—a more sedentary life, more and more food and richer food, alcohol (temporary stimulation to drive on the tired individual), less sleep and greater mental requirements,—make a lack of resistance, in varying degrees, on the part of our private patients, while the hospital charity patient suffers from over-work, physical and mental (in proportion to his development), lack of nutrition, improper hygienic surroundings, and a routine existence. Thus we have to deal with an impaired organism as a whole.

The man of middle life is undergoing a sexual change. He is inclined to be less active sexually, and frequently to cut off intercourse, or to be too active from unnatural stimulation. Both lead to congestion. A large proportion of men have suffered from a prostatitis in early life, the accompaniment of a venereal infection, or a prolonged congestion due to irregular sexual habits, and the glandular tissue is more or less impaired.

Add to this the congestion caused by the sitting posture, increased by slight motion, as in automobile riding; poor circulation; local pressure on the prostate from fecal masses in the rectum; a stream of urine bathing the vesical and urethral surfaces of the prostate,—a urine irritating from its chemical constituents, often containing bacteria in large numbers, originating in a sluggish colon,—and I believe we have a real predisposition to growth-formation, whether adenoma, fibroma, or carcinoma.

I would not intimate that a growth in the prostate can be obviated by the regulation of the life of the individual, any more than fibroids may be obviated in the female. You will say that you have seen many cases in which the individuals have lived model lives. While this may be true in some cases, the most careful questioning will usually reveal some of the points mentioned. The prostate is only part of the human organism,—all parts must

*Presented before the New York Urological Society, at its stated meeting, December 6, 1916.

work in harmony, and the body must be considered as a whole.

Too often the busy urologist leaves the history taking to an unskilled assistant, with little knowledge of urology and none of human nature, who is neither competent nor tactful enough to obtain a history containing any more than a few facts relating to the urinary system. It may be impossible to obtain a history at one sitting—certain points will be revealed by the patient only after his confidence has been obtained.

Linked with such a history, one should obtain a complete analysis of the individual from a general physical examination. It is often unwise to make the complete examination the first time a patient is seen, and we all know how important it is to make repeated observations under changed conditions. How often the patient comes with the question on his lips: "Must I have an operation?" and, after meager questioning and a rectal examination of the prostate (often a congested prostate, perhaps with an overdistended bladder, pushing it down, peri-prostatic inflammation, and a rectum partly filled with fecal masses), a cystoscopic examination is made, and, with a few ounces of residual urine and a gland showing some intravesical protrusion, its removal at once is advised.

If this is done, how often is a nerve lesion overlooked, a congested prostate removed, a localized edema of the vesical neck mistaken for true prostatic obstruction? In the absence of a cystoscopic examination a stricture or vesical calculus may be mistaken for prostatic obstruction.

If the patient had been closely observed over a period of time, his general well-being considered, and repeated examinations made, would this have occurred?

Is it not justice to the patient to give him this chance, and, when he has acquired an even physical and mental keel, to pass unprejudiced judgment? I believe that very few patients will be unwilling to cooperate with us.

This may sound primitive, but the foregoing words are to my mind necessary. The poorly trained urologist does not consider his prostatic cases individually, as he is not personally equipped to do so. The expert urologist is often too busy to give sufficient time to an individual, and is only too ready to emply quick operative treatment, in which he is skilled, and in which his immediate mortality is small, without giving sufficient consideration to two points: (1) Is the operation of prostatectomy the best method of treatment of this individual case? (2) Will the end-result be the most advantageous to the patient?

It has been a revelation to me to observe, after instituting a regular mode of living, diet, and exercise, what improvement in the local prostatic condition has taken place, and how the patient who seemed a sure prostatectomy when first seen, has gone on in comfort in his new method of living; a minor operation substituted for a major; or has at a later time come to prostatectomy with a new reserve with which to meet the exigencies of the major procedure.

The foregoing applies more to those of sufficient intelligence and so situated that advice can be followed. The environment of the individual must be seriously considered. Often a prostatectomy must be advised through inability to satisfactorily carry out hygienic and local measures. A man must be restored to his greatest efficiency in the shortest possible time, and must take a greater chance in doing so.

Hospital ward cases must be considered differently from private cases, but here preliminary treatment can be instituted and carried out, greatly reducing the complications of prostatectomy. This treatment is often shortened by the desire to operate, on the part of the surgeon, or he is hurried into it by the house surgeon, the success of whose service, in his mind, depends upon the number of operations he performs or assists in.

I believe that private cases are best studied in their own environment, if this is possible—the environment in which they are to live. To place a patient in a hospital, instituting radical measures of diet, increased elimination, and local treatment, and then, on improvement, to turn him loose, to return to his old habits of life, will give no lasting benefit, and radical measures might as well be introduced at once, rather than later, when a more aggravated condition will be present.

If patients realize that they are to be treated in this manner, that they are to be observed by an unprejudiced surgeon, they will come more often for inspection, and such a relationship between the specialist and the patient, as well as with the general practitioner, will, I am sure, lessen the number of cases coming to radical surgical procedures. The predisposing factors to prostate changes will be diminished, the causes of continued irritation eliminated, and borderline cases which are progressing would be relieved by radical surgical procedure at a time when the operation will be attended by the lowest mortality and the most complete end-result.

The ideal treatment for true prostatic obstruction must be based primarily upon the pathology of the individual gland; secondarily, upon the pathology of the urinary tract of which it is a part;

and thirdly, the pathology of the entire organism of which the urinary tract is a part.

If these three elements were constant, the treatment for the relief of prostatic obstruction would be comparatively simple. While the pathological changes which take place in the prostate gland, leading to obstruction, follow certain types and many cases fall directly into one of these classes, others present variations which make them borderline cases.

While we know from experience what complications we are to expect from the secondary changes in the urinary tract and the end-function to be obtained, here again the individual pathology is the only key to the situation, and must be continually borne in mind.

The study of large numbers of cases has led to the laying down of certain indications for or against definite lines of treatment based upon the organism as a whole, but here again the individual must be considered from every standpoint.

The above renders the problem of the management of cases of prostatic obstruction secondary to none encountered in the human body, as regards fineness of judgment.

That some ground may be established for the building of general principles of treatment based on the pathology of the prostate, we speak of: (1) The fibrous prostate, in which there is a marked increase in fibrous tissue and a diminution of glandular tissue. Here the gland becomes hard, and usually diminished in size. (2) The adenomatous prostate, in which there is a glandular hyperplasia. This may be localized to one lobe of the prostate, or may involve the entire gland. (3) Malignant degeneration of the prostate. As I have said before, there may be a combination of types.

The *small fibrous prostate,* forming a hard ring about the vesical neck, causing a construction of the outlet, or interfering with the function of the internal vesical sphincter, is one of the most difficult types of obstruction to relieve.

Dilatation of the vesical neck gives but temporary relief. The operation for the removal of this type of prostate is unsatisfactory because of the difficulty in removing the gland, the damage to the vesical neck and sphincter in doing so, and the resultant cicatricial contraction.

For these reasons, various types of less radical operations have been devised, the object being to increase the size of the outlet and diminish the resistance of the hard ring. The most notable of these procedures are: A division of the ring and the removal of a U-shaped piece by means of an instrument introduced through the urethra (Mercier); the substitution of galvano-cautery for a cutting instrument (Bottini, later modified by Frendenberg and Young); the operation of Mercier applied through an external urethrotomy wound (Govley); galvano-cautery prostatotomy applied through an external urethrotomy wound (Chetwood); cautery applied through a cystoscope (Goldschmidt); a removal of pieces of prostatic tissue by means of a modification of Mercier's instrument (the Young punch); the destruction of tissue with the high frequency spark applied through the cystoscope (Bugbee).

The fact that there are so many methods of treatment indicates the inefficiency of all. I believe, however, that the success attendant upon the carrying out of any of these procedures bears a direct relationship to the dexterity of the surgeon and to his personal experience with that type of cases, and attention to details of the operation of which he is the originator or which he has employed the most often. I will not attempt to enumerate the apparent advantages and disadvantages of each.

The statistics given by Young are the best recorded in this class of cases, but are of too recent date to permit of judgment as to the permanence of cure.

Application of the high frequency spark must be made too often and too extensively to be satisfactory in the majority of this type of cases. The local reaction caused by the frequent applications often leads to irritability and infection.

A type of cases spoken of as median bar obstruction, in which there is an elevation only, of the vesical outlet (trigone), may be quite distinct from the small, fibrous prostate, and does not seem to fall into any of the three classes. This elevation of the trigone may be due to a hypertrophy of the mucous membrane only, to an infiltration of the trigone with fibrous tissue or an elevation from very early and limited adenomatous hyperplasia of the median prostatic lobe. This type of obstruction is relieved readily and permanently by burning a furrow through the obstructing tissue. Young claims the same result with his punch. The advantage of the high frequency spark is that one is working by sight, there is no hemorrhage, no resultant cicatricial contraction, and it may be repeated as often as is necessary.

These are cases that should be kept under observation, as the result of any line of treatment is apt to be less permanent.

Adenoma of the prostate comprises the vast majority of cases observed, and may involve any one of the prostatic lobes, any combination of lobes, or all, and the line of treatment to be instituted de-

pends upon the type of obstruction present, taking into consideration the general condition of the patient.

In the majority of cases the earliest adenomatous hyperplasia takes place in the median lobe. This causes an elevation of the vesical outlet and trigone (more pronounced than the median bar), and in very early cases this condition may be found without change in any other part of the gland. What appears at first sight to be a prostate of considerable size, the seat of general adenoma, may prove to be a congested prostate which, when reduced by general constitutional and local treatment, shows only a small intravescal median lobe enlargement.

I have had excellent success in this type of cases —small median lobe enlargement only—by burning through this lobe with the high frequency spark, widening the furrow until it is of sufficient width to remain open when the patient strains, as in voiding. No more tissue is destroyed than is necessary to give immediate relief, and further applications are made at infrequent intervals if the routine examination, every six months, reveals any necessity for this. Some of these cases were treated nearly five years ago, and no cases of this class have since come to prostatectomy.

Most patients with this type of prostate have very few urinary symptons, and these symptons are so trivial that they are inclined to seek advice, perhaps in fear of an operation. Were they made to realize that any and all urinary disturbances are important, and when taken in time might be relieved by a palliative procedure, they would be more apt to consult the urologist.

Occasionally a small anterior lobe, which ordinarily disappears in fetal life, persists and becomes the seat of adenomatous enlargement. This may be found with a median lobe, and I believe this is important to recognize, as it may cause continued obstruction after the median lobe has been partially destroyed.

When this condition is present it may be best to use the Young punch, removing at the same time sections of the anterior as well as the median lobe. Whether the punch or the spark is used, every precaution should be observed, preliminary to, as well as at the time of, operation, to lessen the chance of infection.

I again emphasize the point that the success of the minor operative procedures depends upon attention to details, perfect technic, and after-care.

An inoperable case of general adenoma has recently been brought to my attention where the prostate, by the use of radium applied to the rectal and urethral surfaces of the gland, became reduced to a hard, fibrous ring about the vesical neck. The obstruction caused by the ring was relieved by multiple punches with the Young punch.

In all other forms of adenoma—lateral lobe enlargement or combined lateral and median—and this embraces a large proportion of cases seen—a prostatectomy is advisable, unless there be a contraindication, as follows: Some general nutritional disturbance; severe diabetes; extensive changes in the heart and in the kidneys; advanced arteriosclerosis; general chronic urosepsis. Of these conditions circulatory disturbances are the most important and most likely to lead to a severe complication at or following operation.

While any one of these conditions may be an immediate contraindication to operation, a regulation of the individual as before suggested may, at a later date, place the patient in the operative class.

Seldom is a prostatectomy an emergency operation—a cystotomy may often be such—but an emergency operation is an immediate expedient for the saving of life. Not only is a cystotomy an emergency operation, but it often one of choice. The relief of pressure on the prostate, resulting in the rapid diminution of congestion, relief of back pressure in the kidneys, the possibility of flushing the system, and the relief of urosepsis, make this preliminary procedure one of choice in a majority of the cases of prostatectomy. Often satisfactory results may be obtained by the use of an in-dwelling catheter, but here the drainage is less complete, and the catheter may cause irritation of the urethra, with a certain amount of septic absorption.

The preparation of the patient for operation may be summed up as follows: To simulate as closely as possible before operation the conditions we expect to obtain after operation, so that the process of transition is made with little or no shock to the system.

As to the type of operation to be employed in the removal of the prostate, I believe too much emphasis has been placed upon this point. One should be as familiar with the anatomy of the perineum as with that of the suprapubic region. The operation of perineal prostatectomy perfected by Young has many advantages if carried out as by him; if not performed in this manner, the suprapubic route should always be selected. Some cases fall at once into the suprapubic class. Rather than lay so much emphasis on the type of operation, let us use our energies in preparing our cases, and in postoperative attention to details.

I shall not take up here the technic of prostatectomy.

Is it fair to sentence our patients to sure death

within so many months or years if they do not undergo a prostatectomy? How often do we hear the statement made that catheter life means one infection after another, with a fatal outcome in a very few years. Often this is true, but in dealing with a class of patients who can intelligently follow out our instructions, a catheter may often be used for many years with slight deleterious effects.

It has been a surprise to me to see how comfortable inoperable cases of general adenoma of the prostate have been made by partial relief of the obstruction by burning through the median lobe with the high frequency spark.

Of cases so treated in the past five years, only one has since come to prostatectomy, out of a group of many cases. In two the treatment was discontinued because of the impossibility of manipulation,—due to the size of the prostate. If the prostate is of such size that the passing of a cystoscope results in traumatism, no attempt to apply this treatment should be made.

All of these cases were placed on a regular routine of life, with the most minute attention to diet, exercise, and bowels. A furrow was cut through the median lobe, and widened from time to time. The case that came to operation was markedly improved over his former condition. A growth on the surface of this prostate had been removed by the high frequency spark, as well as a furrow made in the median lobe. Operation was advised because of continued enlargement of the lateral lobes, with increasing retention, and the marked improvement in the patient's general well-being. At operation all that remained of the median lobe was a band of fibrous tissue.

Another patient is comfortable on partial catheter life. Others, whose condition is so improved that operative risk is warranted, are so comfortable that they refuse radical removal of the prostate, preferring to come for inspection and occasional application of the spark when indicated.

This method of treating general adenomata is not the method of choice, but an attempt to make more comfortable those who cannot or will not have a prostatectomy. As I have said before, given an operative risk and a general enlargement, or even a partial involvement of the gland of any appreciable size, prostatectomy is indicated.

Other methods of treatment must be explained as palliative, requiring a long period of time, and possibly be followed by a radical operation, should the patient's condition warrant it at some future time. It must be carried out most carefully, or should not be undertaken.

Carcinoma of the prostate. One of the strongest arguments for the removal of an adenomatous prostate is that so many become malignant. This is certainly a serious consideration, and often warrants the taking of certain operative risks.

The diagnosis of carcinoma of the prostate is often difficult or impossible. The adenomatous prostate is frequently seen for the first time during an acute infection, when inflammatory reaction and infiltration are added to the glandular hyperplasia. This is difficult to differentiate from malignancy, differentiation being possible only after general and local measures have been adopted to reduce the inflammation. Carcinoma generally originates in the posterior lobe and is seldom detected by palpation while in the incipient stages.

When the diagnosis of carcinoma can be made, the growth has usually extended through the prostatic capsule, and for this reason the result of the removal of the prostate is seldom satisfactory. I have seen the most favorable operative cases, where the growth was not diagnosed until the removed gland was sectioned, followed by extensive recurrence within six months.

Symptoms are seldom present in carcinoma of the prostate until an infection has occurred, although the first symptoms may be due to pressure. The removal of this infection often gives complete relief for the time being, and continued care toward this end may result in comparative local comfort until metastasis takes place.

When obstruction occurs, making catheterization painful or impossible, either the obstructing portion must be removed or destroyed, or a suprapubic drainage must be made. During the past year and a half radium has been employed more and more, being applied to the vesical or rectal surfaces, or into the substance of the gland. My own experience has been too limited to draw any conclusions. Cases observed and treated by others have shown considerable toxemia following the applications, and the time is too short since the treatment to give conclusions.

It seems to me that sufficient radiation to cause a decided and permanent effect in reducing the size of the growth must cause extensive tissue destruction (very little of which is cast off on the surface), and this must be taken up by the system, with resultant toxemia. Does this hasten metastasis? And does not the lowering of the resistance from the reactionary period render the patient less able to withstand the original disease?

My own feeling is that the less the mechanical interference, the more slowly the malignant growth increases in size, and that if the tissue is to be destroyed, the destruction should take place no more

rapidly than the body can take care of it without causing severe reaction, or we must be able to neutralize the toxemia.

One case of scirrhus carcinoma now under my care has gone three years since first seen. He then had an extensive carcinoma of the prostate, vesicles and base of bladder, with complete retention. Enough of the obstructing portion of the growth was destroyed to allow relief by voiding and the passage of a soft catheter once or twice a day to draw off the five or six ounces of residual, has kept the patient free from urinary discomfort. He returned to his occupation, and only in the past few months has he failed from metastatic growths.

Perhaps in carcinoma of the prostate more than in any other prostatic cases must the man be treated as an individual, and while our means at hand are most inefficient, still we should attempt to give relief of symptoms.

I should emphasize the following:

(1) Our aim in treating cases of prostatic obstruction is to preserve the life of the individual, and to restore function.

(2) The restoration of function should be brought about as rapidly as is consistent with the individual after taking into consideration every point connected with his welfare.

(3) Prostatic obstruction of the vesical neck is mechanical and can be relieved only by removing the obstruction.

(4) The complete removal of the obstructing gland is the ideal method. Other methods of treatment must be considered as palliative, may result in cure or be followed by radical operation.

(5) When the ideal cannot be attained, much relief can be given by painstaking treatment and complete cooperation between patient and surgeon.

Before performing prostatectomy, it is desirable to determine roentgenographically that there is no stone in kidney or ureter.

Have you asked yourself whether YOU ought to join the Army or Navy Medical Reserve Corps?

Tell the young hospital graduate who fears that if he enters the Medical Reserve Corps he may be killed by submarine or bullet that better men have died for less.

BONE GRAFTING.*

V. A. FUNK, M. D.
VINCENNES, IND.

The experimental stage of the grafting of bone has been past. Its clinical uses have firmly rooted the procedure in surgical practice. As abdominal surgery alleviated many racking pains, and prolonged numerous human lives, bone transplantation has restored thousands of invalids, relieved countless cripples, and made it possible for many to earn a livelihood who otherwise would have been partially or totally dependent. It has greatly shortened the treatment of disagreeable bone lesions, has obliterated various complications, and has made the once seemingly impossible, possible. It has almost revolutionized bone surgery. All surgeons acknowledge its advantages; none now doubts its adaptability; and the marvelous results obtained by all who are close adherents of truly aseptic surgical technic, are causing autogenous bone grating to be used more and more for the repair of conditions which a few years ago were handled by non-absorbable material.

The general practitioner should be familiar with the great possibilities of bone grafting. He should know thoroughly its indications, for he then perhaps would be able to direct some unnecessarily crippled individual to correct treatment, or by intelligent advice prevent him from becoming a distorted piece of humanity, burdensome to himself and to everyone around him.

The indications for the transplantation of bone have gradually increased since the beginning of this chapter of surgery. They at first were very few, but now they cover rather a wide field. When Lane first introduced the famous plate for fractures of recent date, or those which refused to unite, we felt that he had originated a great aid to our fracture surgery; but we realize now that in these cases a bone transplantation of some variety is far superior to the non-absorbable steel plate.

In fractures where the head of the femur or humerus has been broken off, they themselves, even though dead, act as a scaffold for the haversian vessels and perform the rôle of a transplant. Should it be an old fracture and the head of the bone is absorbed, a transplant can be placed with one end in contact with the shaft of the bone, the other in the joint cavity, and a new head will be formed. In ununited fractures, the transplant has proven to be the surest way to get union, providing the graft

* Read before the Wabash Aesculapian Society, Terre Haute, Ind., May 25, 1916.

is long enough to span the eburnated portion which has been formed at the broken ends of the bone by nature's attempt to heal the fracture. Here the bone graft has been used with most excellent results. I think that we can safely say that the non-absorbable material which has heretofore been used in the repair of bony defects, is as sure to disappear from bone surgery, as it has from abdominal surgery. Albee says he has not used metals in bone fixation for the last two years.

In these large spindle-celled or giant-celled sarcomata and other lesions which, before the transplantation of bone was known, always called for an amputation, we are safe now to excise the pathological condition and fill in that defect with bone, thereby giving the patient a perfect limb, and as useful as he had before the trouble began. Bloodgood reports twenty-three cases of bone transplantation in giant-celled sarcoma with no recurrence. Some of these cases had been curetted one to two

Fig. 1.

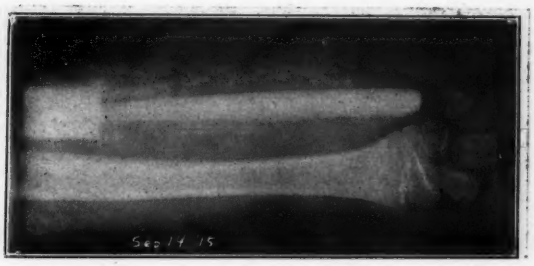

Fig 2.

times with recurrence each time. In chondrosarcoma the chances are better for amputation, yet about fifty per cent. of the patients will not have a recurrence after resection and transplantation; therefore, the transplant is always worth a trial.

One of the greatest uses for the bone graft is for Pott's disease of the spine. Albee reports 104 cases operated upon, in every case of which that had paraplegia the paralysis cleared up, the time varying from three to five months. The law governing this procedure is, as we know, to immobilize, support and separate the infected vertebral bodies. This is to prevent them from being crushed after they are softened by the infective process; otherwise, the disease will extend from one to the other. The main object is to splint the diseased area, just as it is with the plaster jacket and spinal braces; but, in bone transplanting the deformity can always be straightened more or less, according to the duration of the disease. We also put the infected part absolutely at rest, which is of paramount importance in all tuberculous infections, no matter in what part of the body. There is a dispute among some of the writers as to the age of the patient at which bone transplantation for Pott's disease of the spine is eligible. Young says not to transplant in patients under eight years old.

One of the inspiring things about bone grafting is its possibilities, which are by no means exhausted. The peculiar thing about a transplant in tuberculous lesions is that the graft will span through pure tuberculous infection, where no mixed infection is present, if in contact with the healthy bone on either side. In the pitiful osteomyelitis cases, once the dread of every surgeon, where from the loss of bone, extreme shortening, total disability or perhaps amputation as the last resort, was the patient's fate, we can now obtain thorough drainage, convert the infective process into sterile field and then by the transplantation of bone, change a hopeless case into a happy and useful patient. Defects of the bony framework from gun-shot wounds or injuries of any kind, can, after the field is freed of infection, be converted, made normal or almost so, by bone grafting.

Bone grafting of cranial defects is rather new, yet portions of flat bones are used successfully and quite large defects can be filled in. The best bones for this work are pieces from the ribs because of their shape and from the fact that they can be bent to coincide with the curvature of the skull. Congenital defects of the bony skeleton may also be eliminated by transplantation of bone. Troutt of Virginia recently grafted a piece tibia from the patient's father into a spina bifida defect with good results. Rogers grafts bone on the front of the fractured patella to bridge over the line with new bone instead of uniting the capsules or wiring the bone, which often gives only fibrous union. In some of his cases he has grafted after refracture and in some after the wiring operation had failed.

What kind of a transplant should we use? This question has caused various experimental work. Some of all the various kinds of transplants have given good results. The best and the surest results have come from the autogenous grafts, or those

removed from the same body, and with its periosteum. Quetner transplanted the hip joint and the upper third of the femur from a cadaver with good results. The bone was stored for twenty-four hours in saline solution to which some chloroform had been added; but most of the experimental work in transplants from animals or other persons have not given the brilliant results that the autogenous transplants have. Man to man transplantation is dangerous from the standpoint of introducing infection by tuberculosis or lues. There seems to be also in this form of grafting a tendency to a malignant non-bacterial suppuration, so severe at times that it may cause gangrene.

Although bone transplantation has become a well recognized and successful procedure, perhaps no one subject in surgery has created a greater discussion than that of the function of the periosteum in the bone grafts, and the rôle played by the graft itself. In Germany the view is generally accepted

Fig. 3.

Fig. 4.

that the bone graft always dies; that it is totally absorbed and is reformed from the periosteum, which alone remains living in the transplant.

Macewen claims that the bone in the craft is reproduced from the proliferation of the osteoblasts, derived from the osteoblasts within the bone of the graft itself, and the regeneration takes place independently of the periosteum, the latter acting as a limiting membrane which prevents the spread of the osteoblasts into the surrounding tissues.

Murphy claimed that the graft is purely an osteoconductive agent only, forming a scaffold or framework upon which the haversian vessels and osteoblastic cells may travel. The haversian canals of the dead bone act as tubes into which the haversian vessels from the living bone pass. These vessels carry with them on their walls osteoblasts and osteoclasts. The osteoclasts dissolve the dead bone that was transplanted and the osteoblasts follow, building up the new, the transplant thus acting in an indirect manner entirely. It is hard to arrive at a conclusion as to the rôle the transplant plays in this procedure as the ideas of different observers vary so greatly. Although Barth at one time held the view that a transplant or fragment of bone acted merely as a scaffold for the developing osteoblasts, he now accepts the view of many others that the compact bone of the graft is absorbed and that it is replaced by bone formed by the periosteum and the endosteum of the graft.

I think that the greater number of surgeons of to-day incline to accept the views of Barth in the reproduction of the bone and the function of the graft, and therefore adhere to the rule of always retaining the periosteum, and if possible some endosteum, with all grafts. However, some are convinced by their own experiments that the graft does not need intact periosteum, and according to Murphy's theory there would be no use of including the periosteum with the graft, as the results would be as constantly perfect with the scaffold being made up with nothing but bone as they would have if the periosteum had been retained. There is not, however, a single instance where he ventured a transplantation without retaining the periosteum. He made the excuse that his results had been 100% good with the periosteum retained, so why run a risk by leaving it off. He could hardly advance a theory on very permanent grounds until he had proven it by experimental or clinical observation. However, from a standpoint of success it matters not to us what function the transplant plays, and that portion of the subject is interesting only from a scientific view, yet, as in all surgical procedures, when the whole process is thoroughly understood there are usually radical changes in the procedure for the betterment of the patient concerned. When we consider the amount of discussion that has arisen over these two points, we feel that it has been hair-splitting. When the function of the graft and also that of the periosteum have been proven beyond a doubt, we may gain nothing by the knowledge, from a clinical standpoint. However, certain laws or rules are already permanently established by which we must regulate the practice of

bone transplanting which, if overlooked, are sure to make sad failures of the procedures.

Lexner claims that failure may occur after the initial healing, because of absorption taking place faster than the process of healing. If the graft is not long enough the results are sure to be disastrous. We must not fail to have the graft long enough to extend a good distance into each marrow cavity in order that there is no liability of its working down or up, thereby breaking the bridge which has been formed between the two ends of the normal bone. An absorbable peg may be inserted to retain the graft in place. When the bone is used as a peg in fractures of the neck of the femur and humerus to hold the head in position, it must fit snugly enough in the hole prepared for the peg so that it will not easily work out. We cannot expect a small piece of bone to act as a splint therefore, the part must be immobilized after bone transplantation as though we were treating a simple fracture without any internal coaptating material whatever. If we do not do this, our graft is sure to be a failure. If the graft becomes loose, or a septic condition arises at the site of the graft, it will develop into a sequestrum and will have to come out. There is a possibility that we may get union around the loose graft or around a graft which has become infected, after the infection has subsided, but a dead infected transplant will usually become a sequestrum and will act as such. The graft must be in contact at one or both ends with living osteogenetic elements. This must always be carefully considered when dealing with ununited fractures. When the graft is in contact with living bones at both ends the defect will be filled in, and the repair will take place, more rapidly than where the graft is in contact only at one end.

If we are transplanting for congenital defects, or for defects from injuries to a bone which is covered with periosteum, we must always freshen the bones where the transplant comes in contact, by raising up a periosteal flap, otherwise the transplant in time will be absorbed whether it is planted with or without its periosteum. This, however, has been doubted by some observers, and some have proven by experiments that bone with periosteum in contact will grow out in the tissues, with no connection whatever to any bone. However, I have failed to find any of these latter experiments extending over a very long period. The bone may survive without osteogenetic bony relations for a time, but I do not believe that it will remain indefinitely.

A transplant cannot be placed in the presence of pus, although this has been denied, and three or four cases are reported where good results were obtained when the transplantation was made to prevent defects while the infection was being treated. As a general rule, however, the results have been disastrous following this kind of work. There is a possibility in the cases that have been reported, that the infection had been going for so long that its virulence had become so much lowered that it was not able to cause the death of the transplant.

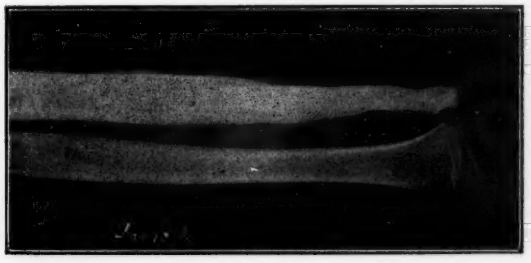

Fig. 5.

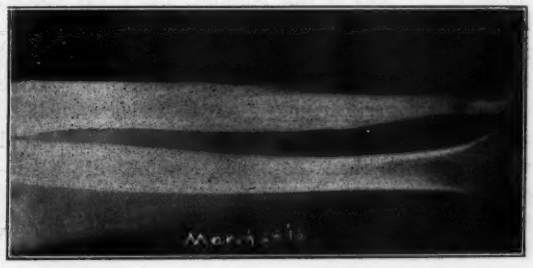

Fig 6.

We can also conceive of the surrounding tissues having coped with the infection for so long, that their resistance may have been brought to the point of withstanding an attenuated infection. Murphy reports an interesting case of a girl eight years old with osteomyelitis of the tibia where, to prevent shortening of the leg during the pus period, he transplanted bone in the osteomyelitic defect comprising almost the entire tibia, and the results were perfect.

Macewen claims the periosteum aids in the nutrition of bone because of its abundant blood supply, which is distributed through the haversian canals to the bone. The periosteum seems also to be a limiting membrane. Cohen claims that it has no osteogenetic function, because of the fact that the entire periosteum may be removed from growing bones, and their growth unimpaired, therefore, it is not essential for bone growth. We must consider, however, the endosteum keeping up the growth in a compensating way. As Albee says, there is much discussion as to the exact rôle which the autogenous graft plays, but as no one has questioned its re-

liability as a surgical agent, the discussion is really an academic one. Lexer claims that the bone marrow should be removed from all transplants, as he has had some unpleasant experiences in some cases where it was included. Marked inflammatory symptoms appeared, associated with mild fever developed about the transplant. It did not, however, prevent the proper healing of the graft, and he believed the reaction to be due to the absorption of the product of decomposition of the marrow. These grafts, however, were taken from amputated legs. The use of these homoplastic grafts may have been the cause of the disturbance. The men who are close adherents of the autogenous grafts have not reported any untoward symptoms from the retention of the bone marrow.

Bone transplantation must be done on definite principles, and these definite principles are: First, that the transplant should be taken with periosteum; Second, it should preferably be from the patient himself. If that is not possible, the graft should be taken from some one of about the same age, and a relative if possible. Third, it must be planted in contact at one or both ends with living bone denuded of periosteum. Fourth, strict asepsis is most essential. The peritoneal cavity can stand more infection than the bones, and because a surgeon can enter the abdomen and come out without leaving infection that will give trouble afterwards, is not a guarantee that he can perform bone grafting successfully.

The technic for bone grafting is rather tedious and generally difficult. The field is first prepared for the transplant, whether it is an excision of a certain portion of a long bone, the repair of a defect in a skull, the freshening and reaming out of the medullary cavity for non-union of a fracture, or for any transplanting procedure. This is prepared first, that the oozing which is always present from the tissues, may have a chance to subside while the graft is being prepared. The oozing, if not stopped before the graft is inserted, will cause the formation of a blood clot around it, preventing the direct adherence of the surrounding tissues to the periosteum, thereby blocking the much-needed nutritional transference from the vascular tissues to the periosteum. The graft is usually taken from the tibia, the skin incision made to one side of the tibial crest, that the scar may not be directly over the crest of the bone where it has little protection. The size of the graft is ascertained, it is removed and is then shaped to fill in the defect. Some surgeons are using an inlay from the same bone for ununited fractures. I like this method very much for those cases because it does away with the operative procedures on the tibia and causes only one incision to be made, and with the motor saw it is very quickly performed.

In a bone like the tibia or femur the inlay is easily prepared and the patient will submit to this when he may not submit to removing the bone from other portions of the body. Some modification of the inlay method can be used in all work on the long bones. The inlay is prepared by removing a piece of bone from the long fragment and a shorter piece the same width from the shorter fragment. The long piece of bone is then inserted to extend from one fragment to the other, filling in the defect which has been made from removing the shorter inlay. This leaves a gap in the longer fragment of bone in which the shorter piece can be dropped, which totally fills up the space from which the inlays were removed. The adherents of the inlay method for ununited or recent fractures, claim that it is superior to the intramedullary

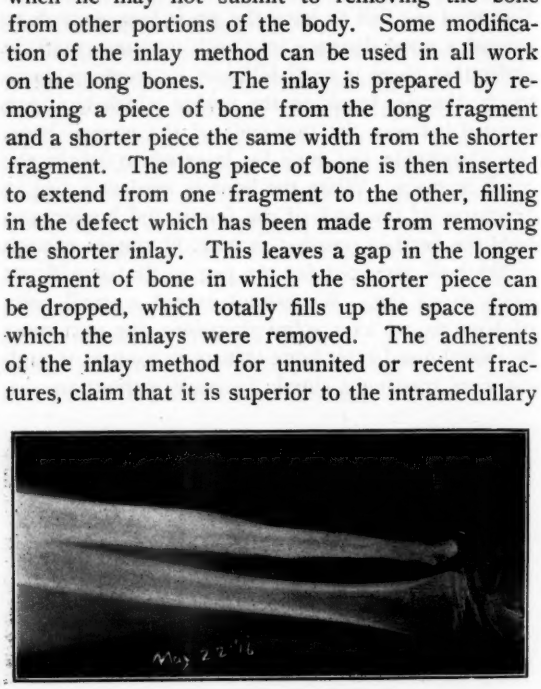

Fig. 7.

graft because it dispenses with the foreign body in the medullary cavity, and places the four osteal layers—that the periosteum, compacta, endosteum and marrow in direct apposition. These can be fastened in place by some absorbable material. A loop of silver wire surrounding the whole bone may be used, but absorbable material is much better. The bone graft may be removed by mallet and chisel, and the results from the operative procedure carried out under aseptic conditions will be as good, as if done with the more expensive motor saws. However, the removal of a bone transplant with the chisel very much prolongs the operation, and risks the chance of ruining the graft, which would necessitate a large piece of bone to be removed for another graft, thereby lengthening the time before the patient can use the graft-sacrificing leg.

In transplanting for defects in the skull, the rib is the best bone to use, and the periosteum left on the rib and turned in makes an admirable surface for contact with the meninges. The inner periosteum limits the deposit of new bone toward the brain. Where it is not possible to inlay a graft,

and the medullary canal is so small that a graft cannot be inserted within it, the fracture may be repaired by the periosteum on one side being removed for a distance, and a small graft strapped to the side of the bone, and the results will be favorable.

Henderson claims that while strict asepsis is very desirable, yet it is not absolutely necessary, for good results have been attained in spite of infection. Fixation must be retained for a long time as he has had two failures in fractures of the neck of the femur in which he used spike grafts, without immobilizing long enough. McWilliams is a very firm believer in the retention of the periosteum at all times. The growth depends on an effectual blood supply, and the periosteum favorably influences that supply. In his experiences, 100% of the grafts lived where the periosteum was retained, while in those grafts that did not have the periosteum only 40% gave good results. As we do not know what cases are going to have adequate blood

Fig. 8.

supply and what cases are not, we had better take the benefit of the doubt and leave the periosteum in place. The periosteum lives from the blood supply of the surrounding tissues, the inner surface forming osteoblasts which take the place of the osteoblasts in the bone, if the latter die from the lack of blood supply. This is the case in grafts of large size. In transplanting a very minute graft, especially in tissues of abundant blood supply the results might be favorable, even should the periosteum be left off, because the graft being small, the whole bone can get direct nourishment from the surrounding vascular tissues. In defects of the lower jaw, any portion of the jaw bone may be removed and the defect filled in by a correctly shaped transplant. This is another place where the rib forms an admirable graft. A straight transplant from the tibia with cross saw cuts on the marrow side almost to the periosteal surface can also be bent to conform with the shape of the jaw.

There is quite a discussion at present as to the technic in operating for giant-celled sarcomas. Some claim that at first they should be curetted, and if they recur, curetting a second time, is permissible, and should they recur again, then a resection of bone with transplantation is advisable. Others say curette unless the shell around the growth is not thick enough to get beyond the disease. If we can get perfect results in resecting to good bone on each side of the sarcomatous growths, why run the risk of the recurrence after curetting?

In fractures of the head of the humerus or femur a bone peg to hold the head in place is sufficient. The head must not be removed even though we think it is dead, because if it is held in place it will act the same as a transplant and the results will be perfect. The idea that one must use a graft of a size to correspond to that of the bone to which it is to be transplanted is erroneous. The graft does not have to be large in any case whatever. A small graft can be used in any locality, and its growth will proceed until it is large enough to withstand the strain to which that portion of the bone is subjected.

As to the technic for grafting in Pott's disease, the simplest and the one which is giving the best results is the splitting of the spinous processes of the diseased vertebrae, and of two or three vertebrae on each side of the diseased process, and into that split to insert a transplant to be held by absorbable sutures. The patient is then put in a plaster jacket and cared for the same as for non-operated Pott's disease.

T. P., Male, aged 11, entered the Good Samaritan Hospital, Vincennes, Ind., August 24, 1915. About one year before he began to complain of pain at the lower end of the ulna of the left forearm. There was no noticeable swelling until about four months later. The mother thought the enlargement which had slowly increased since first noticed, became larger at times and then decreased somewhat in size. The pain was preceded a short time by an injury at the region of the tumor by striking the arm upon falling to the ground from a low limb of a tree. The pain had never been severe, nor had it radiated. There had been no chills, but possibly some fever at time. The patients general condition was good.

There was enlargement of the lower end of the ulna, with slight tenderness. All the movements of the wrist were perfect except rotation which was limited. X-ray examination showed a cystic tumor of the lower end of the ulna.

At operation, the thin shell surrounding the cyst could be broken down with the finger, which completely destroyed all hopes of any procedure short of a complete resection of the bone above the pathological condition. The lower half of the bone, therefore, was removed and a transplant taken from the left tibis was placed in position. The soft tissues were sutured in place about the graft, and the

wound was closed without drainage. A plaster cast was applied. The wound healed by first intention.

This patient has not worn a splint or any protection of the arm for the last six months. He is going to school and engaging in all of the sports that the other children do with no inconvenience whatever.

The pathological report of the removed tumor by Dr. B. C. R. Williams of Paris, Illinois, was as follows: Caries; rarefying osteitis; resorption and necrosis of bone; proliferating periosteum, showing both areas of injection and tubercles.

The accompanying plates show the pathological condition, the transplant in place, and the development of the bone. From No. 2 a plate was taken one month a part and gives a perfect picture of the steady filling in of the new bone. I wish to thank Dr. J. N. McCoy for his aid and interest in the case, in taking this series of pictures.

INTERNAL SECRETIONS IN OBSTETRICS AND GYNECOLOGY.*

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The glands of which I shall speak are the three that are intimately associated with the development of the genital organs and with their trophic care.

The first that occurs to mind is naturally the *ovary*. It is characteristic of the female, produces the ovum and exerts a direct trophic influence on the development of many of the female sex characteristics and in the development of the uterus and the internal and external genitalia.

Long before menstruation begins, the ovary, probably modified by the action of other glands, has created a differently shaped pelvis in the female than in the male. Through its action, probably modified by the activity of other glands, it has resulted in the development of the breasts, has modified the shape of the body, has not altered the character of the voice and has brought the uterus to a state of normal development. The first evidence of its specific activity is established by the process known as menstruation. Before this it is probably producing ova capable of fecundation.

Menstruation is simply an evidence, usually, that pregnancy is not in being. The secretion from the ovary thrown into the body through lymph- or blood-channels acts on the various membranes of the body, but specifically on the lining of the uterus. The so-called premenstrual congestion is evidenced in the nose, in the mouth, the larynx, the gastric musoca, the intestinal mucosa and in various nerve centers. The phenomena preceding menstruation are an evidence of the reaction of the system to the hyperemic and congestive influence of the ovarian secretion modified by the interactivity of other gland secretions. The lining of the uterus becomes swollen, hyperemic and thickened before menstruation, in preparation for the nesting of the fecundated ovum. If this does not take place then the hyperemia of the thickened lining is relieved by an outflow of blood from the capillaries and menstruation takes place. This is a loss of blood, but not a loss of actual tissue. It is as if water were pressed out of a sponge and in a few days the mucous membrane returns to its normal character.

If the ovaries fail to exert their proper function at the age of adolescence, either through actual injury or from mal-development, or through the inhibiting influence of other secretions, menstruation is delayed and many changes occur in the development of the female body.

Early functioning on the part of the ovary from the standpoint of internal secretory activity is not infrequently evidenced by short limbs and a lack of large development of the body, inhibition of the hypophysis or other glands probably being concerned in these phenomena.

The next gland of importance to the female is the *thyroid*. It is not sufficiently recognized that the thyroid is very intimately related to the sexual apparatus and is what might be called a sex gland. Its functions are more important in the female than in the male and diseases of the thyroid gland are more frequent than those in the male in the proportion of eight or ten to one. The thyroid has much to do with the development of the body, the development of bony growth and the ready action of the cerebrum. It has much to do with the action of the sexual apparatus and is probably concerned with the process of menstruation.

Thyroid diseases, whether those in which the secretion is increased or those in which it is diminished, are frequently associated with anomalies of menstruation. As a general rule in thyroid disease menstruation is diminished, but in some cases, strange to say, menstruation is increased. These apparently contradictory facts may be explained by the relation of the thyroid gland to the other secretory glands and by the fact that the individual cells and the vegetative nervous system do not react in the same manner in every person to the stimulation or absence of certain secretory substances.

The *hypophysis* is a gland of extreme nutritional importance in the development and maintenance of the genital apparatus. The hypophysis is also concerned with the bony growth of the body, over-

* Read before the Associated Physicians of Montclair, N. J., January 22, 1917.

stimulation resulting in large stature; understimulation resulting in small stature sometimes to the degree of dwarfs. It is a strange fact that when we have any involvement of the hypophysis from the secretory side, an oversecretion or an undersecretion, it acts injuriously on the uterus and ovary. The function of the ovarian secretion is inhibited and the trophic influence of ovarian secretion on the uterus and other genital structures is held in abeyance, especially by hypofunction of the posterior lobe.

The posterior lobe of the hypophysis secretes a substance to which we give the name pituitrin, which seems to exert a specific influence during the period of labor. There can scarcely be an involvment of any one of these three glands without there being an associated upset in the function of the other two. Hence the result is a frequent distortion of symptoms depending on the manner and degree in which the secretion of the three and their relation to each other is altered.

The thymus gland has much to do with the development of the individual. In the early years it seems to exert an inhibitory influence on the ovarian function. Thymus extract should be given for persistent menorrhagia or metrorrhagia which yield to no other drugs which have been administered, especially in young girls.

The pineal, a gland rarely involved, appears to be intimately connected in an inhibitory way with the sexual sphere. Hence, certain affections of it result in sexual precocity more especially in boys than in girls. The adrenals have an action too, possibly not so marked on the genital sphere as such, but more or less associated with the other elements known under the name of Secondary Sexual Characteristics. They have a nutritional relation to the sexual organs.

Inasmuch as the secretion of the ovary is the active factor in producing menstruation, it is natural to expect that an extract of the ovaries would produce menstruation if trophic influence or a stimulation is all that is needed. This is a fact. Ovarian extract or corpus luteum gr. x, given three times a day, has a pronounced action in increasing the menstrual flow and bringing it back when absent for various reasons, and in aiding the development of the uterus if given early enough.

In young girls in whom chlorosis may or may not be present, this secretory substance, especially when united with iron, leads to the development of menstruation when late, and increases it when scanty. In lactation atrophy, this combination if given for a particularly long time, brings about a return of menstruation.

Amenorrhea, relative or not, may occur for various reasons other than the presence of pregnancy. In these cases too, which may last either a short or a long time, this combination is of remarkable benefit. Ovarian extract aids in clearing up a diagnosis. It brings about a return of menstruation when there is no pregnancy, and has almost no effect when pregnancy exists.

Dysmenorrhea is a condition in which ovarian extract is not infrequently of value. It by no means cures all cases nor a large proportion of them. To be of any value ovarian extract must be given in large doses for a long period of time. In fact this much must be said of ovarian extract or ovarin, that we expect too much of it in a short time. Its real value is only in evidence after it has been given for weeks and in some cases for months. This holds especially true of dysmenorrhoea; but in the large majority of cases its influence is nil. Dysmenorrhea is often due to a hyperfunction of the posterior pituitary lobe. Perhaps placental extract might be effectual in such cases.

Alterations of the skin of the face, particularly about the chin, not infrequently occur in young girls and young women. These changes are most evident before menstruation. While ovarian extract is no cure-all for these cases, it certainly is an aid, because we know that some anomaly of the secretory function associated with and related to menstruation is at the bottom of the condition. Here, too, ovarian extract may be given, the only contraindication being excessive menstruation.

Going from the period of menstruation to the period known as the menopause or climacterium, the natural trend of logic would lead us to believe that if in the menopause or climacteric period, there is a cessation of ovarian activity, and if various annoyances develop at this time, that the substitution of this lack by the artificial administration of ovarian extract, would bring about a benefit. This is true, much more true than is generally accepted. Practically all the annoyances associated with the climacterium, with the possible exception of menorrhagia, are very greatly benefited by the administration of ovarian extract. This does not imply that one should not also give the bromides or the hypophosphites or other drugs indicated. We simply substitute by ovarian extract the lack of this secretion in the body.

The climacterium is a period when hyperthyroidism or very often, hypothyroidism, is present. Sometimes these states alternate and thyroid gland is of immense value in the hypothyroid myxomatous cases associated with slow pulse, depression and melancholic psychic manifestations. In the cli-

macteric period these annoyances may be present without cessation of menstruation The whole cycle of endocrine glands may be upset and in addition to ovarin and thyroid, hypophysis extract, suprarenal extract, trypsogen, etc., may be indicated, while in other instances these drugs, especially suprarenal extract, may be contra-indicated.

The trophic action of ovarian secretion on the external genitalia at this period is well evidenced by its therapeutic value in certain forms of senile vaginitis and in certain forms of vulvitis associated with intractable itching and not due to diabetes, and in those forms of vulvitis in which the skin particularly and the mucous membrane undergo structural alterations. The skin becomes thickened, it is slightly red, later it becomes white, looking almost like leucoplakia. Severer grades approaching the type of kraurosis vulvae also occur. These trophic alterations occur as a rule in women who have not menstruated for some time. The vaginal mucosa becomes thin, it is readily eroded, not infrequently it bleeds. Ulcerations form and adhesions between the anterior and posterior wall may occur. There are certain forms of puritus vulvae without evident alterations except that produced by scratching. In these cases whatever other line of treatment is followed, ovarian extract in large doses must be given for a fixed period of time.

Local treatment is advisable in these cases, the best drug being nitrate of silver. However, valuable and permanent results are obtained in the cases of vulvitis and in some of the cases of vaginitis by the administration only of ovarian extract in large doses for a long period of time.

We must bear in mind, however, that during this period of climacterium there is an alteration in the interrelation of the three glands mentioned. This alteration is essentially noticeable between the ovarian secretion and the thyroid. If the ovary and thyroid diminish in equal ratio, there is no relative increase in the thyroid. But if the ovarian function ceases more rapidly than the thyroid or if for any reason the thyroid does not retrogress, we then have a state of hyperthyroidism.

On the other hand, the thyroid may retrogress more rapidly than the ovarian or the thyroid may for one reason or other retrogress decidedly, and we have the opposite condition, the condition of myxedema.

Either of these states whether actual or relative is associated with marked upset in the nervous system. These alterations are apart from the flushes or flashes which are considered typical of the climacterium.

For the flushes or flashes, ovarian extract in large doses continued for a long time is of immense value. This holds true in the artificial menopause induced by removal of the ovaries or by atrophy of the ovaries after the removal of the uterus. The fault lies in not giving the drug early enough. If one waits until the flushes or flashes are fully developed, the possibility of overcoming them is not so good; in many cases very remote. But if on the first onset of these annoyances ovarian extract be given continuously, I know no drug which brings about a more specific result and greater improvement in the patient's annoyances than ovarian extract.

Referring now to the nervous phenomena associated with the climacterium I hold that the vast majority of these cases come under the heading of hyperthyroidism or hypothyroidism, and in many cases an alternation between these two extremes. The hypothyroid cases must be treated by thyroid extract with or without ovarian extract; the hyperthyroid condition must be treated with ovarian extract alone or associated with bromides and other drugs.

There seems to be a certain antagonism between the thyroid and the ovary. The glands antagonize each other and at the same time stimulate each other. Hence there is reason for giving ovarin in many cases of hyperthyroidism, especially where this condition is a relative one due to diminution of ovarian extract, here the administration of ovarian extract brings about in many instances delightful results. I wish to repeat again that bromides, bromural and allied drugs are of much value in association with thyroid extract, ovarin or both.

Now these nervous phenomena which we look upon as the natural association with the menopause period, occur at various periods in a woman's life, as a result of ill-health, as a result of labor, as a result of prolonged nursing, as a result of malpositions of the ovaries or due to some anomaly between the glands. The patients in the interval between adolescence and menopause show many of the nervous phenomena so strikingly represented in the climacteric period.

Those of us interested in gynecology have been for many years at fault. Our attention has been devoted to the pelvic structures as found by actual examination and we have thought to place the burden of these phenomena on these. As a result there has developed the theory of reflex and reflex annoyances. There are found headache, palpitation of the heart, digestive disturbances, sleeplessness, irritability, restlessness, mental depression, general asthenia, and all been considered as due to malpositions of the uterus, malpositions of the ovaries, lacerations of the cervix, descent of the uterus, etc.

I have not found any reason to change my opinion formed many years ago, that these pelvic anomalies unless associated with pain, have little or no influence on the patient's general condition by reflex. If, associated with these pelvic alterations demonstrated by tactile sense, ovarian function is disturbed, there is immediately a faulty relation between the ovarian secretion and the thyroid and hypophysis, and as a result thereof we have at least one explanation of the various annoyances duplicated with marked regularity in the climacterium.

The hypophysis is here very often involved. Various asthenic annoyances are the result of over or under activity of the hypophysis, either the anterior lobe or the posterior lobe. There is the dry skin, the slow pulse, brittle hair, the mental asthenia so often characteristic of hypothyroidism. It is often difficult to distinguish between the two. In either of them, thyroid seems to have a very marked influence, a better influence in the hypothyroid cases than in those of hypophysis involvment.

I may here go back for a moment to the element of menstruation and call attention to that form of hypophysis alteration known under the name of Dystrophia Adiposo Genitalis. The patients take on weight gradually, become quite obese, menstruation diminishes and often ceases, the uterus atrophies. Here ovarian secretion is indicated, but in many cases is absolutely valueless. A combination of ovarian secretion, thyroid gland extract and hypophysis extract (the whole gland), may bring about a valuable result, but many cases are progressive and nothing can be done for them.

Coming back to the form of anomalies found in the pelvis, formerly believed to be the cause of nervous and other symptoms as a result of reflex, I do not by any means underestimate the value of treating these conditions. The uterus can be put in normal position and held in proper place, ovaries can be put in proper position and their circulation assured by medical measures or operative, weakness of the pelvic floor should be corrected. Anything which increases the physical nerve resistance of the patient is of value. The rest associated with a rest-cure, also postoperative rest is of the greatest importance.

All these benefits resulting from local or medical measures should not blind us to the fact that because we are correcting these things and because there is an improvement, we have obtained our advantage as a result of a restoration of a balance between the various glands. There is no unanimity on this question as yet, and there is need in this matter of a close study of every individual case.

Let us fix our attention now for a moment on the element of sterility. Suppose that spermatazoa are present, that there is no inflammation of the tubes, no peritoneal adhesions, and that the uterus is normally developed or somewhat hypoplastic, yet no pregnancy results. We know that the ovum makes its way to the uterus through the activity of the ciliated epithelium in the tube. We know that these ova must find their exit from the ovary through the breaking of a Graafian follicle. There are many cases where the ova do not break through, there is a lack of punch, so to speak. There are other instances where the ciliated epithelium is not active.

The ovarian secretion has a marked influence in preserving the activity of the ciliated epithelium. The thyroid probably has an important effect in activating the cilia. The trophic control over ovulation and action of the cilia on the part of the hypophysis may be a controlling factor. It is highly probable that anomalies of hypophysis secretion, especially in the posterior lobe, have much to do with the inhibition of ovulation and the formation of so-called "small cystic degeneration" of the ovaries. In many of these cases pregnancy may result only through the resection of these abnormal portions of each ovary followed by the administration of ovarin, thyroid and hypophysis extract. I am able to report several successful cases of this character. I have found in my experience that without operation cases may be benefited if we give large doses of ovarin and thyroid often with hypophysis extract. This combination has a stimulating influence on the uterus and its lining, resulting in the production of a normal decidua. They stimulate the activity of the ciliated epithelium of the tubes, push the ovary on to new energy and probably aid in the rupture of follicles which otherwise might remain in an unripe atresic state.

Operations on the ovaries themselves when filled with atresic follicles, administration of the two drugs that I have mentioned, have brought into the field of my observation in recent years, a class of patients formerly not benefited by dilatation and curettage. I do not mean to say that stenosis of the cervix, overgrowths of the cervical mucosa, overgrowths of the endometrium are not frequently benefited by dilatation and curettage and result in pregnancy, but there are no fixed symptoms defining these classes. We have to examine each patient separately and frequently until we come to a conclusion. As an aside I may mention that in a large number of cases the tubes are involved by inflammation, the outer ends are closed and it is impossible by tactile examination to make this diagnosis. I am more and more surprised each year to find a

large number of cases in whom an abdominal section will show this condition to be present where frequent and repeated tactile examinations led us only to suspect that this condition existed. All of us know that we open the abdomen expecting adhesions, having supposedly felt them with our fingers, only to find that our tactile sense deceived us.

There is a condition in women known by the name of asthenia. It may be local, it may be general. Women are prone to consider that the cause of their weakness is due to some genital anomaly. And sure enough it is only necessary for a woman to consult enough physicians to find one or more who will tell her that her lacerated perineum, the scar in the cervix, a retroversion or retroflexion, a descent of the uterus, prolapse of one or both ovaries are the responsible factors.

I wish to call attention to this condition of asthenia. It often comes to our observation in patients who have not conceived. We see it, however, more frequently in patients who have borne one or more children. There are patients who after the birth of one child never return to their former state of elasticity. There is a relaxed abdomen, there is an enteroptosis, there is a movable kidney on one or both sides, there is a gastroptosis, there is a lack of tone in the vascular system. These patients have inherited this state. It simply needed one or more labors and the lack of proper involution locally and generally to bring out the symptoms. These patients deserve the greatest care postpartum, convalescence requiring as many as three, six to nine months with rest, massage, drugs, etc. It is in these patients who come to us for the first time that we can find marked benefit in the administration of the internal secretory glands. The two of the greatest benefit are the thyroid gland and the hypophysis gland.

The thyroid gland is an activator of the general system. It should not be given in cases where hyperthyroidism exists or is suspected. The administration brings out more actively the symptoms of hyperthyroidism and for this reason thyroid is an excellent aid to our diagnosis.

Many cases of asthenia are associated with diminished thyroid activity and altered hypophysis and adrenal function. Administration of hypophysis extract means giving the whole gland extract. For the adrenal element, suprarenal extract is excellent. Often we give one, two or all three in combination. You simply have to experiment and try. Many cases of asthenia, if prolonged and continued doses be given, improve decidedly. Of course it is needless to expect benefit from glands extracts alone to be sufficient. Iron should frequently be used, and attention to the intestinal tract is necessary. Rest is of value. Arsenic, iron and the hypophosphites are most important as drugs. After all, whether hypophysis extract be the specific thing or no, it is at any rate a most valuable adjunct.

From this brief review of the action of the various internal secretory structures, extracts of which may be administered by mouth, we see only a few types which stand out as distinctive. Any alteration, of one of the three glands to which attention is directed, which is of very marked degree, does bring out symptoms which scarcely can fail to be recognized. But a large number of patients have these alterations in a minor degree, in some cases slight in character, in other cases transitory, in other cases alternating from the type of one to the type of the other as the relation between the various glands changes for various reasons. The resulting symptoms affect not only the pulse, the menstrual function and the circulation, but the involvments vary in the most puzzling way. Digestion may be upset, constipation may be the result and various forms of nerve annoyances are frequent. There may be stages of excitation, stages of depression or alternations between them. Mental energy may be impaired, there may be extreme irritability or decided lethargy.

No one claims that these conditions are all due to an upset of the internal secretory organs. As physicians, we know too many causes for these conditions. It requires a diagnostic ability above the average to dissociate the cases due to local physical causes, such as of the heart, of the digestive tract, of the kidneys, etc. Only a knowledge of the physiological action of these various secretory organs and of their inter-relation can put us in a position where we may differentiate the various causes, and even then we have innumerable instances where no definite conclusion can be reached early. If, however, we know the action of these various secretory glands when given as extracts, we may by their use and by noting the resulting effects, differentiate between the various causes. This requires not a study of a few weeks, but observation of one's patients for the whole term of one's experience.

I trust that by having called attention to my points of view I may have stimulated a desire to investigate this question further, for I am firmly convinced that in the field of medicine, in the field of neurology and in the field of gynecology especially, one cannot do justice to his patients, one cannot bring about a cure unless he has mastered to a certain degree, a knowledge of the physiology and pathology of the internal secretory organs.

We now come to the posterior lobe of the hypophysis, the extract of which exerts the most pronounced and specific influence. Before going into a discussion of this subject, let me digress for a moment into the physiology of the question.

A woman menstruates because the ovarian secretion produces a certain trophic, hyperemic influence on the uterus and its lining. In association with menstruation an ovum is thrown off from a Graafian follicle. If no fecundation takes place, this Graafian follicle heals and leaves only a scar. If fecundation does take place, this Graafian follicle does not regress, but forms a true corpus luteum or yellow body.

This body is formed in response to stimulation produced by the impregnated ovum in the uterus when menstruation does not take place because of pregnancy. A secretion given off from the impregnated ovum nullifies the menstrual stimulation produced by the ovarian secretion. Not only does it nullify this menstrual stimulation, but the reaction produced by the presence of the ovum and the reaction produced by the presence of the ovum and the secretion which it gives off is responsible for the true corpus luteum which has secretory functions.

Many pregnant patients are nauseated and in certain instances these conditions are aggravated to a dangerous degree. This nausea and vomiting is in all probability due to the irritating effect upon the central nervous system of the secretory product given off by the ovum, particularly by its outer covering, the trophoblast. Hence the theory that injections of corpus luteum extract benefit the emesis and hyperemesis of pregnancy.

During pregnancy there is a change produced in the various secretory glands of the body. A specific reaction is produced in the hypophysis gland. The hypophysis gland (anterior lobe) in a pregnant patient undergoes typical structural changes which never entirely disappear. The posterior lobe is inhibited to a certain degree.

Now, on the two hundred and eightieth day the average patient goes into labor. On the two hundred and eightieth day some change in balance takes place between the various glands of the body, particularly between the hypophysis, the ovary and the placental secretion.

Labor is a magnified menstruation. Menstruation is a miniature labor. Therefore the function of menstruation is, so to speak, restored at the labor period and is supplemented by specific activity of the posterior lobe of the hypophysis. One may inject large amounts of pituitary extract during the various months of pregnancy, up to the very last day, with absolutely no effect; but once labor begins, either with recognized pains or with irregular pains or with a rupture of the membranes, pituitrin comes into its own. We readily see that some relationship of a new character is established. Some inhibitory influence is removed and some stimulative power comes into being which gives the pituitary gland at this period a specific influence. The eventful decision as to just what takes place in the production of these changes will be one of the most important contributions to the study of labor.

If castor oil followed by quinine be given to a pregnant patient very near or at the expected date of labor, and if this be followed within a few hours by repeated injections of pituitrin in doses of two to five minims given every half hour, the patient will go into a normal labor with regular rythmical pains. This method is successful in the vast majority of multigravidae and in about half of the primigravidae. The probable explanation is to be found in the fact that castor oil and quinine sensitize the uterus and decidua and aid in removing the inhibitory influence which the placenta has been exerting on the contractile powers inherent in the posterior lobe of the hypophysis and its secretion.

The injection of pituitrin then exerts its well-known influence on the uterus as well as on the pituitary gland itself. This method if attempted two or three weeks or even a few days before full term (especially in primigravidae) is ineffectual.

The whole question of the administration of pituitrin in labor can be summed up in a very few phrases. It should be given in small doses, not more than two to five minims of an ampoule. It should be given at intervals no shorter than a half-hour. It should only be used when conditions are perfectly normal; by that I mean in primigravidae the relation of the head to the pelvic bones. The head must be firmly engaged in and through the brim. This extract intensifies the labor pains and makes them efficient. Therefore it may be used when no progress is being made. When the membranes rupture before pains begin it takes in some cases from several hours to several days before labor pains come on. When the membranes rupture prematurely and conditions are normal, if pituitary extract be given, it starts the labor pains within a very few hours and it practically shortens the period of waiting. If a Barnes bag or a Champetier de Ribes bag be introduced into the cervix for the induction of labor, if pituitary extract be used just so soon as indefinite pains or discomforts are experienced in the pelvis, the patient goes on into a rhythmical series of labor pains and it is most rare that a second bag must be introduced.

In Cesarean section, if at the time of incision into the skin, a hypodermatic injection of pituitary extract be given, it produces a rapid contraction of the uterus so marked that after expression of the child, the membranes and the placenta, the uterus contracts most decidedly and there is scarcely any bleeding from the mucous lining and absolutely no bleeding from the cut margins of the uterine wound.

In labor (at the end of the second stage), chloroform or nitrous oxide should be used. Attention must be called to the fact that chloroform inhibits the action of pituitrin. After its administration the pains come on less frequently and with less force. Hence it may be necessary to give the pituitary extract at shorter intervals than those of half an hour. Care must be taken in this procedure for the simple reason that so long as the patient is not completely under the anesthetic she uses the voluntary expulsive power of the abdominal muscles. These voluntary forces supplemented by unusually strong contractions on the part of the uterus, may expel the child more rapidly than we wish with lacerations of the perineum.

Many have spoken of the tendency of the uterus to bleed decidedly after the use of pituitary extract, that is during the third stage of labor. I can readily understand this. The purpose of pituitrin is not to contract the uterus alone, it simply increases the force of uterine contractions. There are periods of marked relaxation. It is quite possible that during a period of relaxation bleeding may result even of a most pronounced nature. This is not my experience for the simple reason that I do not use pituitary extract in the third stage or in the post-partum stage. I use ergotole or ernutin. Immediately after the birth of the child a hypodermatic of ernutin or a dose of ergotole by mouth is given. Hence after expression of the placenta we get a more decided contraction of the uterus without relaxation than is the case when pituitrin is used. Hence I believe that for this reason my experience as regards post-partum hemorrhage is better than that of most men who have been using pituitary extract.

Excellent as are the results of pituitary extract in primigravidae, the result in multigravidae is most startling. One may never give even a small dose of pituitary extract to a woman who has already had one child, and leave the patient; for one never knows how quickly labor may progress. It is no exaggeration to say that I have seen pituitary extract deliver a patient in from twenty minutes to a half-hour when the head was not firmly engaged in the brim and the cervix by no means completely dilated.

It may be taken as a general rule that multigravidae who are in labor will deliver themselves in a large proportion of cases with the aid of pituitrin in a period of less than three hours.

In conclusion let me say that if the use of pituitrin has done nothing more than to diminish decidedly the need for forceps, it has added a safeguard to the practice of obstetrics.

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THE CANCER CAMPAIGN QUARTERNARY: THE PROBLEM; THE PUBLIC; THE PATIENT; THE PHYSICIAN.

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(*Continued from the May issue.*)

So far we have encountered only differences of opinion concerning the cause of cancer, but nothing that may be unqualifiedly pronounced a *fact*. What, more than mere hypothesis, may we say relative to this basic element of the great unknown? Is there nothing upon which all those who are interested in helping to eradicate this plague may earnestly unite, something which will materially aid in checking its ravages? Unfortunately, there seems to be no ground upon which all may stand so far as the *essential* cause of cancer is concerned. There are some dissenting voices, however feeble, with regard to the *predisposing causes* and the *local origin* of the disease; but the accumulated evidence, gathered from all over the world, from all manner of sources, from animal and other laboratory experiments, and from clinical observations so numerous as to seem to refute all opposing opinion, warrant at least the statements:

(1) That, notwithstanding the possibility of underlying general factors, cancer may, for all practical purposes, be at present regarded as local in its beginning.

(2) That prominent among the predisposing factors, for which one should be on guard, are: general lowered nutrition; chronic irritation and inflammation; repeated acute trauma; cicatricial tissue, such as lupus and other scars, and burns; benign tumors—warts, moles, nevi (birth-marks), etc.; also that changes occurring in the character of such tumors and tissues, as well as the occurrence of any abnormal discharge from any part of the body, especially if blood-stained, are to be regarded as suspicious.

(3) That some occupations, notably working in pitch, tar, paraffin, analin or soot, and with X-rays,

if not safe-guarded, are conducive to the production of cancer, presumably on account of the chronic irritation or inflammation caused.

(4) That the finding of any abnormal condition about the body should be taken as an indication for competent professional and not personal attention.

Prevention.—It goes without saying that so long as we have not determined the cause of cancer we cannot definitely say that any given course of action or state of being may be counted upon to prevent the development of the local condition which we recognize as cancer. From long observation, as we have just seen, it has been determined that certain factors predispose to the initiation of the malignant process, and we are justified in warning against these factors, thereby placing the public on guard concerning them. We should not, however, be so zealous in our efforts to impress these predisposing factors as to be blind to other possibilities which may controvert our present stand. While busy with the problem of protective immunity, yet us not brush aside as of no moment the proposition that heredity is a possible factor in the initiation of cancer, and therefore must be reckoned with in the prevention of the disease. But we need not (as some have done) become so imbued with the idea that heredity has been *proved* to play a part, as to advocate celibacy in those in whose person or family cancer is known to exist or to have occurred. Nor need we advocate the isolation of persons afflicted with cancer, or other extreme measures in keeping with the prevention of infectious or contagious diseases, because one school of cancer investigators persistently holds to the belief in the infectious nature of this disease. Let us continue to work, each in his or her own way, along lines of preference, looking to the solution of one or more of the enigmas and the ultimate complete analysis of the entire problem. But in the interim let us try to keep the public out of the investigation of the various theoretical and technical questions. Let us not do more than urge watchful waiting, along the lines indicated above, until decisive action is called for; but let us make it unmistakably clear that action, when needed, is the surest aid to the elimination of this malady, by the prevention of its occurrence or its eradication in its incipiency.

Cure.—It has been urged by those who oppose the "cutting" of cancer, or who recommend the surgeon as a recourse of last resort, that the word *cure* is not applicable to cancer when the means employed are of a surgical nature. There is perhaps no more completely and ineradicably fixed delusion in the public mind than that cancer never is really cured, and that if it is cured it was not cancer. It is because of this idea, no doubt, that the public is always ready to accept on faith the latest therapeutic gallimaufry which is exploited. And yet the most tangible phase of the entire obscure problem of cancer concerns its cure. We come more nearly here to fighting cancer with facts than anywhere along the line. For such an accumulation of experience and observation is available to prove that cancer is cured by early and complete removal of the local manifestation which we call "the growth," that this evidence would seem sufficient to convince even the most skeptical. And, forsooth, it would, were it not for the fact that this particular variety of skepticism is incompatible with the scientific attitude of suspended judgment pending proof. It has, moreover, kept alive the aforesaid constitutional theory of the origin of cancer, with various collateral theories concerning diet and habits of life. Out of these theories, quite naturally, have come various methods of treatment, ranging from Christian Science to Rice Regime.

THE PUBLIC.

It is particularly with regard to the question of the cure of cancer that the medical profession, as a whole and individually, should assume the responsibility of safeguarding the public from conflicting opinions, and the consequent lack of confidence in medical advice, with its concomitants, neglect, or the following of false gods. And yet there has been and still is a deplorable lack of unanimity in our views.

I have repeatedly had occasion to discuss the question of "cancer cures," and to deplore the fact that false hopes are constantly being aroused in the public mind by premature reports of "success" with this or that agent or method.

Radium is at present the storm-centre of conflict in this regard. The public is told by one authority (perhaps not intentionally), that "radium, our newest therapeutic agent, is proving to be of the utmost value in the treatment of cancer of all kinds, whether operable or inoperable." By another the public is told that while this agent "will continue to be of value in the treatment of certain small, relatively benign, accessible cancers, . . . as yet no consistent benefits have been obtained in deeper tumors." On the other hand, reports have been published in medical journals (and the information appropriated by the public) of deep-seated cancers "cured" by radium, while other reports tend to show that radium, "even in large doses, and when administered by some of its greatest advocates, is by no means infallible in the superficial cases that it is stated to cure," but, it is added, has made such cases vastly worse.

The public, meanwhile, reads of the thousands spent for radium and radium products by one set of investigators, and of the doubt cast by another faction on the entire radium idea. One expert says: "Give me enough radium and I will cure every case of cancer;" another says: "Would that radium had never been discovered!" And the public loses faith alike in the advocate and the decrier of this agent.

The same uncertainty confronts the public with regard to X-ray. "It cures;" "it should be used after operation in every case of cancer;" it is of little or no benefit;" "It is positively harmful because it stimulates the growth of cancer," — these and many similar statements may be found in campaign literature or heard in campaign lectures.

As for other so-called cures—and I have reference here not to the agencies employed by the patent quack—the public no sooner rids its mind of the hope aroused by the advocates of one "new remedy," before another is foisted upon it by reputable members of the medical profession.

The fact that the public receives much of its medical information through the newspapers, "hunting for something dramatic for their columns," should tend to make the profession much more guarded than it sometimes is in making statements concerning cancer and its treatment. Careless phraseology, which to the initiated is taken as intended, may be honestly misunderstood by the public, and for this reason, physicians, on general principle, should avoid such phraseology in dealing with a subject concerning which they have assumed to educate the public, and concerning which the public, in consequence of the proffered education, considers it has a right to knowledge from this source. If a layman reads, for example, or hears, that "while radium *manifestly* (the italics are mine) *ought to replace surgery in many instances,* and while it does some of its best work in *curing cases which surgery has not the remotest hope of touching,* yet on the whole there remains a large place for radium combined with surgery," etc., he is fairly sure to conclude that the author of such a statement means that radium can and does cure at least some cases which surgery is powerless to benefit. Yet how many such cases can be presented? Are we fighting cancer with *facts* when we make such assertions, even among ourselves?

It must be confessed, however, that the public is not without blame in blocking the dissemination of useful information—or at least not harmful—concerning cancer. The intellectual proletariat may be excluded from this accusation, but those in high places in the world of letters are sometimes the gravest offenders. I have elsewhere directed attention to the unique and spectacular stand taken by one of the great editors of a few years ago, with reference to "cures" for cancer. Editors of to-day, with seemingly no realization of the evil that may ensue, allow the appearance of columns of sensational matter concerning cancer calculated to mislead their readers. Some of this—much, perhaps—is traceable to errors of judgment on the part of the medical profession; but much of it emanates, directly, from the aforesaid high places in the world of letters. A notable instance may be cited in the lengthy and positive advocacy of "red clover tea" by a facile and popular writer of the day, whose means of expression reaches at once thousands more than our campaign literature may be expected to reach in months or perhaps years.

A part, therefore, of the campaign of education should be directed toward impressing upon the public that if the hundreds of earnest workers in laboratory and in clinic are unable to discover ways and means, other than surgical removal, for the cure of cancer, it is a foregone conclusion that traditional remedies, such as "red clover tea" and the thousand and one things that have been listed as cancer "cures," are to be considered time-wasters, and their advocates false teachers.

Too much emphasis cannot be placed (and not enough has yet been given) by the disseminators of knowledge concerning cancer upon the fact that of the large number of "failures" to cure this disease by surgical means many may be charged to ignorance or neglect, or both, on the part of the patient, rather than to any inherent fallacy in the method of treatment. In this connection, unfortunately, the medical profession, in part, is not blameless, for there are still many who prefer to treat "relatively benign," superficial and accessible growths with caustics, electro-cautery, X-ray, radium, or some other non-surgical means. This being true, the task of impressing the public with the importance of the role they must play in the reduction of mortality statistics is rendered more complicated and needlessly difficult.

THE PATIENT.

In a previous communication* I endeavored to emphasize some of the difficulties encountered, from the patient's point of view, in the search for knowledge concerning and relief from cancer. These difficulties, so far as I am able to judge from my own

*"The Cancer Patient's Dilemma. A Plea for the Standardization of What the Public Should be Taught in the Campaign of Education Concerning Cancer," New York Medical Journal, July 3, 1915. (The conclusions of this paper, under the title, "Articles of Faith" Concerning Cancer. A Platform Upon which to Unite in the Campaign of Education, were presented by the author during the four-day Cancer Educational Campaign, held under the Auspices of the Vermont State Medical Society, June 8-11, 1915).

experience and observation, have in no degree been lessened during the twelve months of campaigning which have elapsed since the appearance of this article, along with many others which appeared coincidently over the country, all intended to emphasize some phase of the campaign of education concerning cancer.

It is doubtless true, as has been repeatedly stated that the campaign of education has yielded results in the matter of causing more persons with premalignant and early malignant conditions to consult the surgeon, dermatologist, or family physician, and this, to be sure, is the prime motive of such a propaganda so far as the patient is concerned. But is it not possible to inculcate the idea that no chances are to be taken with these supposedly precancerous warts, moles, etc., that menstrual disorders, especially of middle life, should not be neglected, that bad teeth should be attended to before they have inaugurated a condition of chronic irritation in their vicinity, and that the various other predisposing factors should be borne in mind, without introducing the Mendelian theory of heredity to clinch our arguments, without telling the patient of the many things which recent experiments on hordes of animals have *not* proved,—without, in short, clonding the issue with any of the debatable question now before us? The patient need not be shown "cancers in plants" and to be told that these are similar to cancers in man, leaving the grotesque impression that cabbage, cauliflower, asparagus, or any other succulent and otherwise wholesome article of diet may be the host of a death-dealing disease, and that, if consumed, the host of the disease is changed from the vegetable to the consumer. Nor is it necessary to bring forward figures, mostly of ancient origan, to convince the patient that he must beware absolutely of a meat diet if he would escape cancer. Still less is there need for restricting the patient's diet in keeping with that of "far Cathay."

In short, once the patient has reached the point of consulting a medical adviser, the condition and not a theory is the paramount issue.

THE PHYSICIAN.

The second element of the four which, as I have said, are the chief constituents of the problem of cancer (cause, diagnosis, prevention, cure), so intimately concerns the last member of the cancer quaternary, the physician, that I have left it for further consideration in this connection.

I have repeatedly emphasized my belief in the necessity for beginning any crusade of education concerning cancer within the ranks of the medical profession. The reason for this is fourfold (if I may use another figure four), and is to be found, in tangible form, in the doctor himself.

So far as the campaign of education is concerned, physicians seem to fall into the following groups:

First, those who are so placed in their respective fields of action that they see very few cases of cancer, and for this reason are not so skilled in the diagnosis of this condition as others. Such practitioners are not confined to the rural districts, but may be found in smaller and larger cities as well. Inasmuch as, in the absence of dependable laboratory or other diagnostic tests applicable to the early stages of cancer, the recognition of the disease during these stages is entirely a matter of experience, physicians lacking this experience form the chief object of campaigning. If it is impossible for them to avail themselves of the large clinical material of the leading cities, through hospital interneships, post-graduate courses, or other avenues, then the duty should be made clear to them of referring all doubtful cases to those of larger experience.

Second, those who may be called medical optimists. Nothing is the matter with the patient of this type of physician — found everywhere — until direful illness is imminent. The tendency of these over-hopeful doctors is to pooh-pooh the early stage of practically all diseases. Cancer is certainly no exception. Warts, moles, lumps, bumps,—all alike to him, are "nothing at all." Menstrual irregularities are due to cold or exposure in young women, and to "the change of life" in those who are older. There is no digestive disturbance so persistent as to be inexplicable to him on a basis of improper diet, constipation, lack of exercise, or imagination. Such medical optimists are not the least difficult subjects for enlightenment in the campaign of education regarding cancer.

Third, those who, in contrast to the second class, may be called medical pessimists. They see in every lump or bump a corroding cancer, and in every menstrual disorder the necessity for a panhysterectomy. Needless alarm and mutilation are the inevitable results of such an attitude. Closer study of the individual case and keener analysis of signs and symptoms will obviate the difficulty in a large proportion of these cases. It is from such an angle that this particular class of physicians should be approached in the campaign of enlightenment.

Fourth, those who are not lacking in experience, who are neither optimists nor pessimists, and who constitute the remainder of the medical profession, to which the campaigners themselves belong. The difficulty here—and it is no inconsequent difficulty —is the lack of unanimity. We are endeavoring to teach *facts* about cancer, when we have not deter-

mined what constitutes fact, except with regard to a very limited number of the questions involved. None of us are infallible in the matter of diagnosis, but once the conclusion is reached that a given condition is malignant, the treatment should be instituted in accordance with the facts of accumulated experience. No amount of theorizing can or has disproved the truth of the conclusion that accumulated experience warrants radical surgical removal, from the earliest stage to that which may be advisedly pronounced irremovable.

Many cases have been cited in which the tampering methods of the first class of physicians, the inexperienced, have unwittingly led to disastrous delay. The same unfortunate results have been chronicled as the outcome of the "Oh, let it alone!" advice to the patient who, perhaps, has come under the spell of the advocate of education regarding cancer, who has honestly sought the early advice recommended. The woman, then, with the "lump" in the breast, or the man with the "crack" in his lip, goes out from such a medical adviser saying, "I *thought* that lecturer about cancer was an alarmist. I am glad I went to see Dr. So-and-So, for I was really frightened until he told me it was nothing." Perhaps it was not anything; but perhaps it *was*. The consequence in the latter case will be just as the cancer campaign lecturer predicted it would be. And this state of affairs is perhaps more common, and certainly more distressing, than that which is the outcome of the pessimist's advice, bad as it is. Fear, dread, and perhaps nervous and psychic upsets, on the part of the patient, unintentional neglect and avoidance on the part of friends and relatives of persons afflicted with cancer, are some of the results of the tendency to give a diagnosis of cancer too rashly. The diagnosis, if accepted, leads to treatment with the object of removal of the suspected lump or bump or other abnormality, by surgical means, by cautery, by radium, or other agency, according to the views of the physician consulted. In many instances, some of which I have cited elsewhere, unnecessary and mutilating operations have been performed as the result of this attitude on the part of the physician. The medical man who, lacking neither experience nor diagnostic skill, *denies* to his patient the benefit of the only method of treatment which has stood the test of time, namely, surgical removal, just as surely adds his quota to the list of failures as do physicians of any other class.

With the higher perceptive ability which an earnest and unified education should develop, the physician of the near future should be able to catch the faintest whispers from Nature and give them back to the waiting world with clarion-like reverberation.

A DISPLACEMENT OPERATION FOR GUNSHOT NERVE INJURIES.

Dr. J. F. S. Esser,
Dutch Special Surgeon for Plastic Operations (at present in Vienna).

The displacement of the ulnaris and radialis (musculo-spiral) nerves as carried out by Wollenberg (Berlin) and Polya (Budapest) had, like the procedure of Wrede, the purpose of making it possible to unite the nerve ends by shortening the nerve bed. They deplaced these nerves from the extensor to the flexor side which was shorter for them.

In May, 1915, when I was chief surgeon in Brünn in k. u. k. Receivespital Nr. 2, I carried out on my own initiative, the deplacement of the radialis and other nerves. I made these radialis deplacements until the end of 1915 in thirteen cases. Later, in Vienna, where I had quite different material to work upon, I had unfortunately no more opportunity of performing the same operation.

My displacements had, however, quite another purpose and procedure than those of the surgeons mentioned above. I shall describe it as applied to the radialis nerve. The purpose was only to protect the nerve from the surrounding scars and latent inflammation, by displacement instead of the usual procedures of surrounding the nerve with protecting calf arteries, veins, fascia, etc. These envelopments can all be considered as free transplantations and I am of the opinion that, in consequence of the bad conditions, one cannot believe that these uniformly heal and remain alive. In favorable cases an aseptic absorption process, in these alien parts is rather to be expected. An envelopment of the nerve with a pedicled muscle flap, always seemed better to me, but even this procedure was not as perfect as is displacing the nerve into a healthy normal muscle interstice. Either the pedicled muscle flap is well provided with sufficient vessels and nerves and then it will continually move and draw on the nerve, or the pedicle has not sufficient innervation and vessels, and then the purpose of the operation is defeated, for the muscle disappears or becomes connective tissue.

The nerve is freed over a long distance, both at the place of the injury, as well as above and below, with the very greatest care and patience, in which process the chisel must often help, for the nerve ends are very often surrounded by callus bone-pieces. The nerve ends must be prepared and freed from every particle of connective tissue, so to say, under the magnifying glass. In order to do this perfectly and without haste, I always oper-

ated under plexus-conducting anesthesia (Kulenkamp) so that half an hour, more or less, was of no importance. The plexus-anesthetic demands extreme exactness, patience, and extensive practice, but it offers ideal conditions, which fully recompense for the time and trouble spent.

In all the thirteen cases, I could find remnants of the nerve connection of both ends and I consider this of great importance; be it, that the "bud," the "autogen" process, or both together, play the chief rôle in the healing. Suppose that in some cases this connection was so slender, that one could not ascribe great practical importance to it, respecting innervation, conducting or leading the growth, still the great importance remains that one knows that the patient has had no disadvantages through the operation—not to mention that the patient may have profited at the same time by the operation. The indication of the operation is ruled by this.

In none of the thirteen cases was a diminution of the nerve function proved by examination of the active movements and the electrical susceptibility and agitation, directly after the operation. Among the cases there were some of old, stabile pareses.

In two cases I met with a strikingly quick healing in a few days. Such is also mentioned by other authors.

Therefore I believe that with this operation, the indications can be made broader than the nerve specialists at present propose. I even think, it is to be considered whether every radialis injury with paralysis is not to be operated upon at once, whether the galvanic susceptibility is strongly diminished, or not. Verebély (Budapest) recommends in a careful, beautiful work on injuries of the nerves (*Pester med. chir. Presse,* 1915, Nr. 39, etc.) so operate after at least four or six weeks.

The technic of my procedure was, that after almost perfectly clean preparation of the injured nerve, the massive ends were joined by sewing the nerve sheaths together with the finest vessel sutures. After that, the thin connection which had been so carefully prepared beforehand, hung like a free loop. The muscles brachialis int, and triceps were then sewn together underneath the elevated nerve, and then the liberated nerve was laid in the groove between these muscles covered only with subcutaneous fat and skin.

In Brünn (Moravia) when in 1915, I showed some surgeons my method, and the patients operated upon in this way, my procedure found imitators who were fully satisfied with it, as I heard afterwards.

I myself had good results even with cases of sixteen months old paralyses.

ENUCLEATION OF THE EYE WITH IMPLANTATION OF THE PATIENT'S FAT INTO THE CAVITY.

JOHN M. WHEELER, M.D.,
NEW YORK.

Abundant evidence of general dissatisfaction given by the ordinary enucleation of the eyeball is found in the multitude of modifications which have been proposed by ophthalmic surgeons—modifications designed to give the victims of enucleation the best possible cosmetic results. After the removal of globes and the introduction of glass eyes, the results are liable to be disappointing for several reasons. The weight of the artificial eye in time causes the lower lid to sag, and the eye takes a position noticeably lower than that of the unoperated eye. A tilting is also apt to occur, so that the upper margin falls considerably back of the plane of the lower margin of the prosthesis. Invariably there is a sinking back of the glass eye caused by the shrinkage of the orbital tissues. Resulting from these processes there is a noticeable drooping of the lower lid, the formation of an unsightly sulcus under the orbital arch, with partial or complete obliteration of the normal folds of the upper eyelid. The false position assumed by the lids sometimes interferes with the drainage of tears, and epiphora results. The hollow Snellen eye offers the appearance of greater prominance than the ordinary shell, but it gets practically no support from the contracted stump, and sagging results. De Schweinitz[1] has said, "An enucleation which pays no attention to the preservation of the relationship between the conjunctiva, ocular tendons and capsule of Tenon, is a brutal operation which should not be performed unless the disease of the globe and surrounding orbit is of such a character as to render this precaution impossible."

Recognizing that the ordinary enucleation gives a high percentage of results which are displeasing to both patients and surgeons, many ophthalmologists have suggested the introduction of different kinds of foreign bodies into the cavity which results from removal of the eyeball. Among these substances may be mentioned balls of glass, gold, platinum, silver, pitch, paraffin, silk, sponge and eyeballs taken from rabbits and other animals. None of these foreign bodies has been entirely satisfactory on account of irritability to the tissues,

disintegration, absorption, breakage, extrusion or sympathetic irritation.

The introduction of fatty tissue into the capsule of Tenon after enucleation of the eyeball was first proposed by a Mexican surgeon named Barraquer,[2] who reported excellent results. Many eye surgeons recently have adopted the operation, and several modifications have been suggested. Almost without exception reports have been favorable to this procedure.

The technic which I prefer is as follows: Ether anesthesia is employed. The globe is enucleated with care to save all the tissues outside the sclera, and to injure them as little as possible. Before each muscle is cut from the globe it is clamped at its insertion with a muscle forceps. After cutting the superior rectus and the internal rectus, while the muscle clamps are still on, both needles of double-armed fine catgut sutures are passed from the globe side through the tendons near the cut ends. Then the inferior and external recti are clamped and cut, and the forceps are left on and the enucleation is completed. Pressure is applied with sponges to control hemorrhage and the oozing is allowed to stop while the fatty tissue is being excised from the patient. An incision about an inch and a half long is made in the inner aspect of the thigh, where plenty of fat is to be found even in thin subjects. A piece of subcutaneous and fatty tissue somewhat larger than the normal globe is removed, and deposited into Tenon's capsule. While the muscles are held taut and spread apart by holding the forceps and sutures, this fat should be forced back so as to protrude into the orbit through the openings in Tenon's capsule. An assistant holds the fat back in the orbit with anatomical forceps while the surgeon sutures the muscles over the mass. The needles carrying the gut suture which loops the tendon of the superior rectus are carried through the tendon of the inferior rectus (entering from the globe side) and the suture is tied. This results in a slight overlapping of the tendons. Similarly, the needles which have been passed through the tendon of the internus carry the suture ends through the tendon of the externus and these tendons are tied together. These rectus muscles hold the fat pretty securely, and it no longer has to be held back with forceps. Now the margin of the capsule of Tenon is caught up by a purse-string suture of fine gut and tied. Finally, the conjunctiva is dissected from Tenon's capsule a little and then sewed by vertically placed interrupted sutures of fine silk, so as to make a horizontal conjunctival wound. If this technic is followed the fat will not present in the wound, and will not slough. Some swelling of the lids follows the operation, but this subsides in a few days. The sutures should be removed from the conjunctiva in about a week. If the thigh wound is carefully closed by silk sutures, it heals by primary union.

About three weeks after the operation a shell can be worn, and this will fit snugly over the mound of fat and cling to it. Probably slow absorption of the fat goes on for months or years, particularly in emaciated subjects, but enough remains to preserve a good stump.

Among the advantages which can be justly claimed for this procedure are:

1. Good motility of stump and artificial eye.
2. A thin and light shell can be worn, and this is held in good position as to proper prominence and proper tilt without having to rest on the lower lid.
3. The lachrymal drainage is usually good.
4. The orbital tissues are not required to retain substances foreign to them.
5. There is no danger of sympathetic ophthalmia due to the presence of the fat, and nothing has been introduced which can be broken or extruded.

REFERENCES.

[1]De Schweinitz: The Comparative Value of Enucleation and the Operations which have been Substituted for it. Paper read before the Section on Ophthalmology of the 13th International Congress of Medicine, Paris, Aug. 2-9, 1900, p. 29.

[2]Barraquer: Enucleation ingerto de tejido adepaso en la capsule de Tenon. Archiv. de Oftal. Hisp.-Amer. Vol. 1, 1901, p. 82.

AUTOPLASTIC WHOLE THICKNESS SKIN GRAFTING OF AN AMPUTATION STUMP: A CASE REPORT.

JOSEPH H. FOBES, M. D., F. A. C. S.
NEW YORK.

For some years, especially in the European countries, a method of covering raw areas by the use of flaps of skin has been in vogue. Most of these areas were so located that a limb could be slipped underneath a strip of skin, attached at either end, and when circulation and healing were established, the ends of the strip could be cut and the strip sutured over the grafted area. The following case illustrates a modification of this method which is especially useful in covering amputation stumps and avoiding an amputation higher up on the limb with the consequent loss of length of the member affected.

Robert W., twenty-two years of age, came into the Volunteer Hospital, New York City, under my service, on August 14, 1913. He had suffered an accident in a machine which resulted in a denuda-

tion of most of the soft tissue from a point just above the wrist down to the metacarpo-phalangeal joints of the right hand. The interne replaced the flaps and sutured them, endeavoring to get union. The bloodvessels, however, had been injured so badly just above the wrist, that in a short time gangrene ensued necessitating, under ordinary circumstances, an amputation at the middle of the forearm.

I conceived the idea of amputating at the wrist, allowing the parts to recover from the septic condition in which they were, and at some future time covering the stump with a section of skin, connective tissue and fat from some other available part of the body, thus saving to the patient his wrist bones, and one-half of his forearm bones. August 22nd the amputation was done in the manner mentioned and the parts allowed to heal, leaving a granulating stump.

On October 29, 1913, at the Hahnemann Hospital, a pocket was made in the left quadrant of the anterior wall of the abdomen, including skin, connective tissue, and fat, down to the fascia. Into this pocket the stump was inserted and the skin flap sutured to the skin on the forearm.

During the night after the operation, the patient, who was an extremely hard one to handle, tore the dressings off, but with the assistance of the house-surgeon, Doctor Dupuy, the limb was replaced and after a rather long convalescence, on November 14, the flap had become firmly grown to the forearm. Then a sufficient amount of the pocket wall was incised and placed over the stump. Considering the poor quality of the tissue and the presence of a moderate number of staphylococci, the healing from this point was remarkably good, until at this date the patient possesses a firm cushion at least one and one-half inches thick over the end of the wrist bones. A rubber hand was applied and the patient assures me that the result is all that he could possibly expect.

During the dressings it was found that "scarlet red" remarkably accelerated the process of epidermalization. I regard scarlet red, and especially the amido-azotoluol, a most remarkable agent for the production of epithelia on a granulating surface and I have used this material since 1908 with great success.

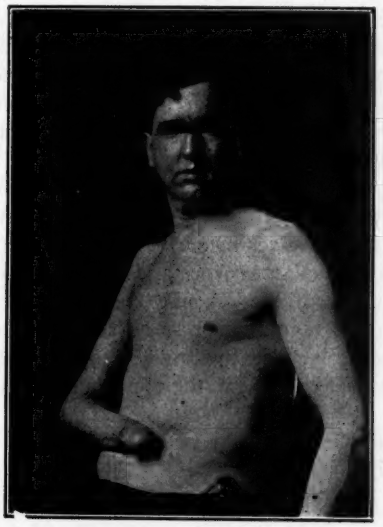

Fig. 1.

Fig. 2.

The points to be remembered in the application of this method are first, it preserves much of the continuity of limbs which would otherwise be amputated; second, it produces a firm, comfortable, painless stump for the end of amputated bones; third, an important point in the technique is the attainment of perfect drainage from a lower angle of the pocket; fourth, it is necessary to absolutely immobilize both parts, preferably by a plaster cast.

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WALTER M. BRICKNER, M.D., F.A.C.S., Editor

NEW YORK, JUNE, 1917.

YOUNG HOSPITAL GRADUATE, WHAT OF YOUR DUTY?

In the May issue of THE JOURNAL we called we called attention to the need of the U. S. Navy, and especially of the Army, for more medical men; and we urged upon every man in the profession to take stock of his talents and his experience, his age and his health, and to determine whether his greater duty is at home and to his community, or in the regular or reserve corps of the navy or army to accept service wherever his country may call him.

The number of medical officers in the army and in its reserve corps is still far below what will soon be needed. Thousands are required for the army divisions that are to be raised. They will all be needed as soon as recruit concentration begins. Many will be needed before that. Many have already been ordered to duty.

The need for more physicians in the military hospitals abroad is very great, the strain upon the medical profession of our allies during the past three years has been tremendous. Indeed, assistance in this field is one of the most pressing needs that have been brought to the attention of our government. In response thereto six base hospital units, some ambulance companies and several individual officers—all in the medical reserve corps and the enlisted reserve corps—have recently been sent abroad. More will probably be sent soon.

The call is not merely to our patriotism. It is a cry to succor the wounded,—a cry that needs no partisan stimulant to stir our pulses. Since the war began many American surgeons have given their aid abroad, as volunteers, without rank or compensation.

The honor of being the first to carry our colors across the Atlantic in this great war for democracy has fallen to the physician. The first to go, he will probably be the last to return, for a declaration of peace has no influence on the healing of wounds! For those medical reserve corps officers who have been, or stand ready to be, sent abroad, the sacrifice is great, indeed, for most of them are men over 35, with established practices and large expenses at home, whose army pay will fall far short of maintaining their families during their absence.

With this spirit of sacrifice as an example to them, what of the *young* men recently graduated or about to be graduated from the medical schools and, especially, the hospitals? Most of them have no dependents and no practice. For them military service now involves *no sacrifice*. On the contrary, it offers unusual experience and excellent pay. Why have so few of these young men sought commissions in the regular or reserve corps? Have we, their elders, sufficiently brought to their attention the duty that calls them, the opportunity that awaits them?

Those who are in the midst of their hospital interneships should complete them; they may be needed later and will then be better trained. But those who have recently completed, or are now completing, their hospital courses have, with few exceptions, no satisfactory excuse for failing to apply for commission in the Medical Reserve Corps. It is discouraging, indeed, to hear from the lips of some of them, "Oh, I'm not going in until I have to," "I'm not willing to be a fourteenth assistant," "I'd join if I could be sure I'd get operative work to do," etc. Such sentiments are not merely nauseatingly unpatriotic; they show gross ignorance of the work of the army medical officer and the needs of the hour. There is no service put upon commissioned officers in the sanitary corps that is beneath the dignity of *any* medical man. There is none, certainly, that the young hospital graduate will not be dignified in performing. Thousands of older men have accepted the commission for *any* work that is assigned to them. Why should youngsters look for assurances of better? Uncle Sam will try to place every man where his experience and ability can be best used; and every man with talent

will have the opportunity to make that talent show. And if some are placed below those less worthy, what of it? The call is for *service*, and the young men, trained in our hospitals and unfettered by other obligations, who turn their backs on that call must answer to their consciences now—and to conscription officers later!—W. M. B.

THE AMERICAN MEDICAL ASSOCIATION.

The physicians of New York City have prepared to welcome, this month, the return of the American Medical Association to the metropolis for the first time in thirty years.

New York, the greatest city of the western hemisphere, and in many respects the greatest city in the world, has correspondingly more to interest the visitor than any other American city. Its very many, large and varied hospitals present a wealth of opportunity for clinical observations; and the demonstrations arranged for the first two days of the meeting are calculated to be varied enough and many enough to make this a new feature of the annual convocation, a valuable one.

The scientific meetings, at the Academy of Medicine and at the large hotels in its vicinity, will be conveniently to each other, and to those two famous thoroughfares, Fifth Avenue and Broadway.

The distraction of the war, the perturbation of those who await the call to active service, may disturb the single-minded interest that usually marks the scientific sessions; they may depress the spirit of the general meeting and the social events; but they will not lessen the sincerity of the welcome which the profession of New York extends to its visiting colleagues.—W. M. B.

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Surgical Suggestions

The prognosis of a surgical operation upon a diabetic is far more serious when the condition operated upon is directly related to the diabetes (e. g., carbuncle, cellulitis), than when it is merely incidental. The prognosis of diabetes is, too, far graver in very young adults and in the very old, than in the middle-aged.

If a foot gangrene is dry and limited to one or more toes or even to the tissues just proximal to the toe, the surgeon is justified in treating it "expectantly," but with great care to avoid infection, in anticipation of a spontaneous separation and in the hope of a satisfactory healing. A more extensive gangrene than this requires surgical amputation.

Pronounced cholemia, unless it be acute, makes an operation a hazardous procedure, especially in the aged. In spite of it, operation may be imperative. To minimize its dangers the bleeding and coagulation time should be watched from day to day, blood coagulents should be employed preoperatively and, when the obstruction is due to stones, one may often wait for a subsidence of symptoms, with a much better prospect of a recovery. When the cholemia is due to carcinoma operation should be avoided.

In a diabetic, if gangrene of one or more toes is associated with an apparently mild and very limited infection, and if the urinary and blood findings are not forbidding, the surgeon is not unjustified in treating this conservatively, by free drainage and adequate absorbent dressings, *provided that the patient is under constant observation and that amputation can be performed at any time.* But if a single attempt at drainage does not arrest the progress of the infection, if the cellulitis extends at all, it is dangerous to delay further. Second and third incisions do no good—indeed, they seem to spread the cellulitis—and at any moment during the delay may come the dreaded explosion—acidosis and coma.

Surgical Sociology

Ira S. Wile, M.D., Department Editor.

PREPARING FOR MEDICAL-MILITARY SERVICE.

In the development of medical officers for the United States military and naval services it is exceedingly important that promptness in training be secured. A large number of ambulance units have been constituted from men thoroughly willing to serve, but lacking in the essential technical knowledge fitting them for the particular duties connected with military organization. It is probably impossible to prevent the first units who are sent abroad from going unprepared, save in the medical and surgical technic acquired through civil practice. It would appear to be an act of wisdom for ambulance units to become thoroughly organized and to undergo a course of training, fitting them for any type of service to which they may be assigned, either in this country or on foreign soil. Every physician contemplating enlistment in the war should be undergoing a period of training in order to familiarize himself with the numerous problems which are certain to present themselves.

Various medical colleges are now instituting courses of lectures under military auspices to facilitate the didactic instruction of candidates for the medical corps. A general course involves the duties falling upon the medical department during peace or war, including sanitation, supplies, records, examination of recruits, hospital organization, rationing, hygiene on the march, in the camp, and in the field, military weapons and their effects, and the characteristics of wounds from various sources. The numerous diseases, not peculiar to but common among soldiers, are discussed as well as methods of the evacuation of the wounded, the treatment of wounds, and the general tactical information required by medical officers in protecting the health and welfare of troops.

A large number of physicians will undoubtedly find themselves unable to attend upon organized courses of lectures, but, nonetheless, feel the need of self-improvement and development along these lines. In connection with this problem much benefit may be secured through familiarity with the various regulations of the medical department. It may be possible to have access to these manuals, books of rules and tables of organization at army headquarters. It appears to be difficult to secure copies for personal use as the supply is apparently limited. Application must be made to the Government Printing Office, Washington, D. C., and copies will be forthcoming if they are available.

Among books which are purchasable and which are of particular value there may be recommended the following:

Military Hygiene. By Colonel E. L. Munson.
Military Hygiene. By Colonel Valery Havard.
Military Hygiene. By Major P. M. Ashburn.
Military Hygiene. By Colonel A. E. Woodhull.
Field Service. By Captain J. A. Moss.
Medical Service in Campaign. By Colonel Paul F. Straub.
A Study in Troop Leading and Management of Sanitary Service in War. By Morrison and Munson.
Handbook for Sanitary Troops. By Colonel C. E. Mason.
Gun Shot Injuries. By Colonel Louis A. Lagarde.
Surgical Experience in South Africa. By G. H. Makins.
Medical Military Aspects of the European War. By Fauntleroy.
Military Surgery. By Dunlap Penhallow.

The above-named works are merely designed to suggest a starting-point for those aiming to prepare themselves for the service they desire to undertake.

With the exception of work in base hospitals the amount of surgical service performed is comparatively negligible for higher officers compared with the importance of administrative work and effective sanitation and the securing of a high degree of personal hygiene on the part of troops.

During the period of time that must pass before the mobilization of the army by selective draft, the medical forces should be put through a rigorous course of training with a view to developing their efficiency as a unit and developing the potentialities of the personnel. There can be no excuse for failure to develop this important branch of military service and the need for it is apparent to all familiar with the medical aspects of modern warfare. The large number of majors and captains recently commissioned who lack adequate knowledge of their duties is bound to result in unsatisfactory service unless special effort is made to acquaint such officers with the details of their future duties. The fact that a man stands high in the medical or surgical profession and largely on this basis attains high rank does not suffice to prove that he will become an equally great leader in military service. Reputation and name under civil conditions will not serve as a satisfactory substitute for the carefully trained man whose youth and enthusiasm, medical training and hospital experience is supplemented by

thorough instruction along military lines. As Lieutenant Colonel Henry Page of the Medical Corps of the Army put it, in the *Military Surgeon*, April, 1917:

"I grant you that surgeons intended only for ward work in base hospitals require far less training than do men required for field service, but this does not alter the fact that a man without military training is a misfit in the military establishment, no matter what duty he attempts. This is true of teamsters, depot clerks, pay clerks, and chaplains, but it is far more true in the case of surgeons who must be made available for so many of the duties of a soldier. So much for the apathy of the medical profession that is born of a lack of appreciation of the necessity for preparedness."

Assuming for the time being that the struggle in which this country is now engaged is to be of long duration, every ounce of effort should be put forth to prepare the medical organization for competent service. The time to begin is now. The call to arms has been issued. The medical profession has a responsibility for self-preparation which it should be the first to recognize.

Are you preparing yourself for service? Are you competent? Are you informed? Are you ready?

Book Reviews

Oral Abscesses. By KURT H. THOMA, D.M.D., Lecturer on Oral Histology and Pathology and Member of the Research Department of Harvard University Dental School; Instructor in Dental Anatomy, Harvard Medical School; Visiting Dental Surgeon to the Long Island Hospital, Consulting Oral Surgeon to the Boston Dispensary. Octavo; 213 pages; 293 illustrations (several in colors). Boston: RITTER & COMPANY, 1916.

At this time, when so much attention is directed to "focal infections"—especially in the tonsils and teeth—as causes of various diseases often of obscure origin, this comprehensive monograph on Oral Abscesses, written with authority, is a welcome contribution.

It discusses briefly "abscesses" of the tongue, and suppuration of the salivary glands and ducts, but it deals chiefly with dental abscesses. Tonsillar infections are not considered.

Every aspect of dental abscesses is discussed at length—etiology, pathology, histology, bacteriology, roentgenology, remote effects, complications, surgical treatment and preventive dentistry. In addition the author cites several cases of joint disease, septic anemia, etc., in which improvement followed the treatment of tooth abscesses discovered by *x*-ray examination.

There is free quotation from the literature. Rosenow's teachings are thus referred to and apparently accepted by Thoma.

The book is profusely illustrated with roentgenograms, drawings, photographs and many colored plates. Typographically it is not as attractive as it is pictorially. The same size type is used for headings and for sub-heads, e. g., for "Acute Cervical Lymphadenitis" and for "Illustrative Case." We cannot refrain, also, from criticizing such slang as "the patient had no temperature" and "*x*-rays were taken."

It has been too often demonstrated to longer dispute that some "rheumatic pains" and other conditions have had their origin in focal infections located beneath a tooth, often discoverable only by *x*-ray examination. It has not yet been satisfactorily established, however, that such "focal infections" in tooth, tonsil or seminal vesicle, are as often the cause of distal symptoms as many enthusiasts believe. It is well to examine the teeth roentgenographically and to attend to a disease process definitely demonstrated there; but is unwise to become obsessed with "focal infections" and to sacrifice tonsils and teeth on the altar of a fad.

Every physician and surgeon should inform himself thoroughly upon the subject of dental abscesses, so that he can diagnose their presence from the films and understands how, by imperfect dentistry and otherwise, they are produced. We cordially commend this comprehensive monograph for this purpose. It is clear, thorough and very interesting. It does not make too sweeping claims, but it drives the lesson home.

A Practice of Gynecology. By HENRY JELLETT, M.D. (Dublin University), F.R.C.P.I., Master, Rotunda Hospital, Dublin; formerly King's Professor of Midwifery and Gynecology, Dublin University; Extern Examiner in Midwifery and Gynecology, Dublin University, Royal University of Ireland, and Victoria University, Manchester; Censor and Examiner in Midwifery and Gynecology, Royal College of Physicians, Ireland. Octavo, 618 pages; 385 illustrations. Philadelphia: LEA & FEBIGER, (1916). (Printed in England.)

The present volume represents the fourth edition of the author's "Short Practice of Gynecology," which has been altered and practically rewritten so that it may be referred to by the specialist in the practice of gynecology. A great many really illuminating illustrations have been added, particularly of operations and of pathological specimens. Two special chapters have been added to bring the work up to the present status of gynecological progress. These are contributed respectively by Walter Stevenson and R. J. Rowlette on "Radiotherapy in Gynecology" and "Vaccine Treatment in Gynecology."

In spite of the personal difficulties entailed by war-work, Jellett has succeeded admirably in enlarging and improving upon the third edition of his "Practice of Gynecology" and enhancing in no small measure the practical value of the book. His exposition of the majority of the more theoretical aspects of the subject is further to be specially commended for its clearness and accuracy and its agreement with the most recent developments in gynecologic literature.

Clinical and Laboratory Technic. By H. L. MCNEIL, A. B., M. D., Adjunct Professor of Medicine and Instructor in Physical Diagnosis, University of Texas Medical School, Galveston, Texas. Duodecimo; 88 pages, illustrated. St. Louis: C. V. MOSBY COMPANY, 1916.

In this book the science of physical and laboratory examination is reduced to the barest outlines. Only methods are given, without their significance. The bareness of the text necessarily renders the book of very limited value, but we can conceive that it may prove of some service as a handy reference book in laboratories. There is one very important omission. Blood cultures, except in the diagnosis of typhoid fever, are not discussed.

Progressive Medicine. Edited by H. A. HARE, M. D., assisted by L. F. APPLEMAN, M. D., March 1, 1917, octavo; 319 pages. Philadelphia and New York: LEA AND FEBIGER.

This volume contains the following articles: Surgery of the Head and Neck, by Chas. H. Frazier, Surgery of the Thorax, by George P. Müller; Infectious Diseases, by John Rühran; Diseases of Children by Floyd M. Crandall, and Rhinology, Saryngology and Otology by George M. Coates. All the reviews are of the high order of merit usual with this publication.

Practical Uranalysis. By B. C. R. WILLIAMS, M. D., Director, Wabash Valley Research Laboratory; Author of *"Laboratory Methods,"* etc. Duodecimo; 142 pages; illustrated. St. Louis: C. V. MASBY COMPANY, 1916.

This is a very practical working text-book on uranalysis. As a rule, only the standard methods of examination are given, so that the reader is not confused by a multiplicity of methods. The rationale and description of the methods are clearly set forth, and the significance of the findings are discussed in a single and concise manner. Differences may arise in some instances in regard to the best method selected for a given analysis, but in such instances, we must respect the author's experience. Indeed, much of the value of the book is due to the fact that it is largely a personal work. Many will probably differ with the author in regard to the interpretation and significance of renal cells in the sediment. On the whole, however, the book has a distinct value.

The Internal Secretions, Their Physiology and Application to Pathology. By E. GLEY, Member of the Academy of Medicine of Paris; Professor of Physiology in the College of France, etc. Translated from the French and Edited by MAURICE FISHBERG, Clinical Professor of Medicine, New York University and Bellevue Hospital Medical College; Attending Physician, Montifiore Home and Hospital for Chronic Diseases. Duodecimo; 241 pages. New York: PAUL B. HOCHER, 1917.

This volume attempts to present in a brief and clear manner a discussion of the physiology and pathological significance of the endocrine glands. The author indicates that physiologists long knew much about the secretions of the duct glands, but that the study of endocrine secretions still requires much investigation. The endocrine secretions are those which come from glands which distribute their products not through the cutaneous surface or the gastro-intestinal mucous membranes, but directly to the tissue by means of the blood stream.

In chapter II there is a very good presentation of the rôle hormones play. Gley first states facts and then proceeds to make his deductions. On pages 172 to 174, inclusive, there are compact tables showing the products secreted by the internal glands, the resultant disorders which follow upon changes in these organs, and the functional correlation depending upon the endocrine products secreted.

The final chapter considers the functions of the internal secretory glands. The normal activities of the glands are given, then the facinating interrelationship between these glands discussed so that the entire subject seems related and consistent.

This volume, although small and unpretentious, is nevertheless valuable. It is written by an authority and accomplishes what it attempts to do, namely, to bring before the medical reader a timely and clear exposition of the functions and importance of the endocrine glands.

Books Received

How to Run an Automobile. A concise, practical treatise, written in simple language explaining the functions of modern gasoline Automobile parts with complete instructions for driving and care. By VICTOR W. PAGE, *M. E.*, member Society of Automobile Engineers; Author of "The Modern Gasoline Automobile," "Automobile Repairing Made Easy," &c., Duodecimo; 178 pages; 72 illustrations. New York. THE NORMAN W. HENLEY PUBLISHING CO., 1917. $1.00.

Physical Chemistry of Vital Phenomena. B. J. F. MCCLENDON, Assistant Professor of Physiology in the University of Minnesota. Small octavo; 240 pages; illustrated. Princeton: PRINCETON UNIVERSITY PRESS, 1917. $2.00.

Cancer. Its Cause and Treatment. By L. DUNCAN BULKLEY, A.M., M.D., Senior Physician to the New York Skin and Cancer Hospital, etc. Volume II. Duodecimo; 282 pages. New York: PAUL B. HOEBER, 1917. $1.50.

A Surgeon in Khaki. By ARTHUR ANDERSON MARTIN, M.D., CH.B., F.R.C.S.ED., Senior Surgeon, Palmerston North Hospital, New Zealand; late Field Ambulance, 5th Division, 2nd Army: late Surgical Specialist, No. 6 General Hospital, Rouen, France, British Expeditionary Force; late Civil Surgeon, South African Field Force, 1901. Duodecimo; 216 pages; illustrated. New York: LONGMANS, GREEN & Co., $1.00.

Pulmonary Tuberculosis. By EDWARD O. OTIS, M.D., Professor of Pulmonary Diseases & Climatology, Tufts College Medical School, Boston; formerly Visiting and Consulting Physician to the Massachusetts State Sanatorium (Rutland); Consulting Physician to the Boston Dispensary, Tuberculosis Department. Small octavo; 220 pages; illustrated. Boston, W. M. LEONARD, 1917.

Quiz Compend on Physiology. By ALBERT P. BRUBAKER, A.M., M.D., author of "A Text-Book of Physiology;" Professor of Physiology and Medical Jurisprudence in the Jefferson Medical College; formerly Professor of Physiology in the Pennsylvania College of Dental Surgery; Fellow of the College of Physicians of Philadelphia. *Fourteenth Edition.*. Duodecimo; 262 pages; 26 illustrations. Philadelphia: P. BLAKISTON'S SON & Co., 1917. $1.25.

Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgerv in Cornell University Medical College, New York; Consulting Surgeon to New York and Bellevue Hospitals; Corresponding Member of the Sociétié de Chirurgie of Paris. *Eighth Edition.* Octavo; 946 pages; 514 illustrations. New York & Philadelphia: LEA & FEBIGER, 1917. $6.

Progress in Surgery

A Résumé of Recent Literature.

Fascia Transplantation Into Visceral Defects: An Experimental and Clinical Study. HAROLD NEUHOF, *Surgery, Gynecology and Obstetrics*, April, 1917.

The free transplantation of fascia into asceptic fields has a wide sphere of usefulness. It has proved very satisfactory in the replacement of thoracic defects, of aponeurotic defects in operations for various types of hernia, and of defects of the cranial dura. Fascia transplants have been very successfully used, in a variety of ways, for the reinforcement or replacement of ligaments, tendons, and paralyzed muscles. They have proved effective as coverings for wounds of solid organs, especially the liver. Their usefulness has not been clearly demonstrated in other asceptic fields; as sheaths for the isolation of nerves, as strips for occlusion of the pylorus, in fixation or suspension of organs, for separation of joint-surfaces.

There are many advantages of fascia over other tissue transplants (fat, muscle, periosteum, etc.) for the purposes mentioned. Fascia (lata) is most readily accessible, is obtainable in almost unlimited quantities, its removal does no damage. Transplanted fascia has a remarkable tendency to heal in place even under most disadvantageous conditions, requiring minimal nourishment to obviate necrosis. It combines great tensile strength with slight tendency to stretch or contract. It is most readily adaptable to the shape of any organ, and technically can be most easily handled. Finally, fascia can be invariably transplanted autoplastically. The other transplantable tissues have some of these characteristics, none of them has all. The ultimate fate of transplanted fascia has not been definitely determined. The experiments Neuhof has reported indicate early disintegration in non-aseptic fields, degeneration at late periods in asceptic fields. Of practical

importance is the fact that the resultant firm connective tissue is as serviceable as the original transplant.

In the presence of infection, or about hollow viscera fascia transplants have been equally successful and unsuccessful. In the former the author considers the successful grafts to have been fortunate accidents.

Bladder defects were successfully replaced by fascia. As much as half the bladder could be so replaced. The fascial grafts were sutured into and not over the defects. Bone formation was an invariable sequel at the site of the graft, but is not necessarily due to the fusion, as the same result followed when fat was used to fill in the defect. The immediate anatomic and functional results of replacement of extensive ureteral defects by tubes of fascia were satisfactory.

Large tracheal defects (involving as much as three cartilage rings and most of the anterin aspect of the organ) were invariably replaced successfully. The anatomic result was ideal, cilated tracheal epithelium growing completely over the transplant soon after the operation. The functional results were satisfactory, the newly formed tracheal wall being rigid and resistant, the narrowing of the lumen being insignificant.

Large esophageal defects were replaced successfully in all experiments. Slight stenoris developed soon after transplantation; at later stages this was almost imperceptible. Epithelial overgrowth was complete. The functional was as good as the anatomic result.

Perforation through the transplant invariably followed its simple implantation into gastric defects. When gastroenterostomy, with or without pyloric exclusion, was added the graft of fascia healed smoothly over.

In the intestine fascia transplants succeeded most often in the large intestine, less often in the lower part of the small intestine, and least of all in the upper part of the small intestine.

Finally transplants of fascia were successful in other than hollow viscera; in the liver, diaphragm, pleura, lung, pericardium, sninal dura.

In addition to the experimental details of this enormous amount of work, Neuhof gives the clinical aspects of the experiments. He concludes his study with the report of a successful replacement by fascia of a large urethral defect; also that of a successful replacement of a tracheal defect in the same way.

A long bibliography concludes this truly monographic contribution to the subject of fascia transplants. The results obtained by Neuhof and the many suggestions for further work cannot fail of being a great stimulus in the development of this difficult and much neglected field of plastic surgery.

The Effect of Removal of the Gall-Bladder, an Experimental Study. E. STARR JUDD and FRANK C. MANN, *Surgery, Gynecology and Obstetrics,* April, 1917.

After the removal of the gall bladder, Judd and Mann found that all the ducts outside the liver dilate. The sphincter at the entrance of the common bile-duct into the duodenum is the chief factor in producing this dilatation. After cholecystectomy, this sphincter can withstand only a small percentage of the pressure which it normally maintains. When all the muscle fibres are dissected free from the intramural portion of the duct, the biliary tract does not dilate after the removal of the gall bladder.

Local Analgesia in the Cure of Abdominal Hernia. J. H. JACOBSON, *Interstate Medical Journal,* March, 1917.

Jacobson believes that the surgeon will return to a greater and wider use of local analgesia for herniotomy. There is a choice between the Schleich and the "Braun" methods. In the former the operator uses small hypodermic needles and each layer of tissue is infiltrated before it is incised; the quantity of anesthestic solution is quite small. In the Braun method larger amounts of solution are used through large needles. The entire zone of operation becomes circumscribed by a ring of anesthesia. This method is sometimes known as the "conduction" method of anesthesia.

Novocain freshly prepared and boiled for three minutes is generally employed; the strength varies from ½% to 2% solution. A preliminary general narcotic is not given. Under novocain infiltration the author has performed many hernia operations with much ease. The operation is complete, there is no pain, and there are no post anesthesia effects such as one may get after the use of general anesthesia.

Tuberculous Hip Disease. JACOB GROSSMAN. *Medicine and Surgery,* March, 1917.

After the spine, the hip joint ranks as the most frequent joint for tuberculosis involvement. The process is always destructive and consequently leads to impairment of joint tissues and resultant physical and mechanical changes. The disease is practically one of childhood, before 10 years as a rule. The focal lesion (and the initial one) is in the bone or original membrane, but soon the disease extends and with it there appears a distinct inflammatory atrophy.

Incipient tuberculosis of the hip is extremely difficult to diagnose since any irritative or inflammatory condition may simulate the same clinical picture. The *x*-ray is not of great value in these early cases. Later the roentgen ray is of help in diagnosing the condition and in tracing the course of the disease.

To obtain a recovery with a well functioning joint it is very necessary to arrive at an early diagnosis. Local orthopedic measures are not sufficient; they must be used with hygienic and constitutional treatment. Tuberculin and heliotherapy may be employed as adjuncts.

A Satisfactory Method of Obtaining Blood for Diagnostic Purposes in Infancy, with a Preliminary Report on Longitudinal Sinus Transfusion. EARL MENDUM TARR. *The Canadian Medical Association Journal,* March, 1917.

The author has carried out 207 intravenous punctures into the longitudinal sinus of children. The finger is placed at the lowermost point of the posterior fontavelle and the sinus entered just above the finger. Blood flows very readily. This method is available for children, however small or debilitated they may be. For obtaining blood or for venotherapy of one form or another, this procedure is safe, convenient and simple.

Tarr performed a blood transfusion through the longitudinal sinus and speaks very highly of the availability of the sinus for all such occasions.

Results of Treatments for Fractures of the Carpal Bones. H. W. MARSHALL, *Boston Medical and Surgical Journal.* March 1, 1917.

From a study of eighty-one cases, Marshall draws the following conclusions:

The very large majority of injuries to carpal bones are fractures of the scaphoid.

1. Early fractures of scaphoid bones without displacement of fragments should be protected for a short time,—one to four weeks,—then passive and active movements gradually resumed until painful symptoms subside. Such early fractures resulting from slight injuries should not be operated on, because many wrists regain good function with very little medical care.

2. Old ununited fractures of scaphoid bones, without displacement of fragments, however, should be operated upon if soreness persists for a long period, or recurs frequently enough to cause serious disability.

3. Occupational elements are important ones in determining subsequent disabilities. Workmen whose occupations compel constant severe use of their wrists will be incapacitated for longer periods than those whose work requires only intermittent light use of wrists, other factors of the situations being equal.

4. The length of time which should be allowed to elapse between injury and time of operation differs widely according to different occupations, different degrees of initial injuries, and varying constitutional conditions of patients. Decisions as to surgical intervention should be made by comparisons of the existing degrees of incapacity with probable results of surgical treatment and its attendant sequelæ in form of repair from surgical trauma and the disturbing of normal bony relations of the wrists.

5. Fractures with accompanying irreducible dislocations of semilunar bones should be operated upon soon.

6. Perfect restorations of wrist motions after operations appear to be rare, but fairly serviceable wrists ultimately should be expected.

7. Protecting wristlets are useful for patients who are in intermediate stages, or for brief recurrences of symptoms in old cases, if supports are made removable so as to be used to regulate more accurately changing proportions of exercise and rest which have to be made in restorations of normal functions. Wristlets can be employed easily, however, in a way to furnish too much protection, and thus prolong recovery unduly.

8. Fractures of other carpal bones, so far as is known, act similarly to scaphoid fractures, and painless useful wrists presumably are ultimate results in all cases; but too few cases are included in the present series to draw conclusions from.

Hypertrophic Ileo-Cecal Tuberculosis. H. GAGE and E. L. HUNT, Boston, *Boston Medical and Surgical Journal*, February 22, 1917.

Gage and Hunt give a general survey of the subject. Ileo-cecal tuberculosis is not very common, although, since 1891, when attention was called to the condition, upwards of three hundred cases have been reported. Pathalogically, the condition is distinguished by a tubercular invasion starting from the mucosa with an immense fibroid change in the walls of the intestine so that the organ is considerably increased in thickness. Clinically, the disease resembles cancer very closely; indeed in most instances the differential diagnosis is impossible. Unlike the Entero-peritoneal type of tuberculosis, cecal tuberculosis is rarely accompanied by other active foci of the disease, so that the probability is very strong that this form is a primary focus resulting from infection by way of the intestine. The authors favor resection as the best method of treating the disease, and not by ileo-colostomy.

Lightning—Some of Its Effects. CASPAR FRANK HEGNER. *Annals of Surgery*, April, 1917.

Hegner points out that protection against lightning does not lie in providing insulation or resistance, but in establishing a path of greater conductivity and of less resistance than the body. He compiles many interesting and instructive facts and emphasizes particularly that the amount of damage to the clothing or to the surface of the body is no index to the extent or the severity of the injuries sustained within the body.

As lightning travels faster than sensory impulses or the tracts are blocked, the injuries at the time of their occurrence are usually painless. The symptoms may be grouped as (1) external, mechanical, (2) internal or essential, (3) mental or psychical.

The prognosis is always guarded. Symptoms are temporary as a rule if no demonstrable pathological conditions result from the stroke.

Supernumerary Bones of the Foot. SAMUEL KLEINBERG, *Annals of Surgery*, April, 1917.

The author has observed with comparative frequency in the routine *x*-ray examination of feet, supernumerary bones and also well-marked variations in the outlines of the astragolus and oscalcis. It is important to diagnose the presence of these supernumerary bones as something distinct and different from fractures or inflammatory processes.

Three hundred and fifty *x*-ray plates were made (of one or both feet), and of tris number 62 showed supernumerary bones. Kleinberg, therefore, says that these bones are frequently found in the foot. They are constant in position and regular in outline, though they may vary in size and shape.

Isolated Disease of the Scaphoid Bone of the Foot (Köhler's Disease). W. B. HETZEL, *The American Journal of Orthopedic Surgery*, March, 1917.

Hetzel adds another case to the twelve already reported. The condition as reported by Köhler deals with isolated changes of the scaphoid only. The bone remains smaller than normal, irregular in outline, with no distinction between cortex and spongy position. These signs are readily made out by the *x*-ray and are quite typical.

Clinically the patient complains of slight pain on weight-bearing and there is limping. The diagnosis is not difficult and once arrived at the condition yields to treatment of immobilization.

In all likelihood this disease is due to an osteochondritis of the scaphoid bone.

Preliminary Renal Drainage with Special Reference to the Two-Stage Operation on the Kidney. JOHN R. CAULK, *Annals of Surgery*, May, 1917.

For a limited group of cases, Caulk advises a two-stage operation for kidney surgery. In children and in infants particularly who reach the surgeon with large pyonephroses, for instance, extremely toxic and where any surgical shock would be fatal, a preliminary nephrotomy may offer the only chance for a recovery. Caulk has operated upon quite a number of such children without any fatality. Under gas anesthesia the kidneys are exposed through a lumbar incision, tube drains inserted within and about the kidney, and the patient removed from the operating room. About four weeks later the kidney is removed.

The two-stage operation is of special value in bilateral calculus, pyelonephritis or pyonephrosis. At the first step, one kidney is drained and subsequently the stones removed on that side. The procedure is repeated for the opposite side.

The Value of the Bacillus Bulgaricus in the Treatment of Coccus Infections of the Bladder. RICHARD FROTHINGHAM O'NEIL. *Annals of Surgery*, May, 1917.

In 1914, Caulk reported striking results obtained in the treatment of incrusted cystitis with an emulsion of bacillus Bulgaricus. O'Neil carried out this procedure and found it to be of distinct value. At first, he employed the tablet preparations of the bacillus Bulgaricus, but subsequently found fresh liquid cultures more reliable. The technic consists in injecting 20 cc. into the bladder after a preliminary irrigation. The treatment is given daily and acid sodium phosphate is administered at the same time.

From an analysis of his cases, O'Neil states: (1) that crustations which occur in coccus infections with an alkaline urine can be best removed by the injection of these bacteria. (2) The reoccurrence of these incrustations may be prevented by maintaining a strongly acid urine, by means of these bacteria. (3) The method is applicable in the treatment and prevention of incrustations sometimes seen in urinary wounds. The treatment must be regular and produces no untoward effects. If the infection is not confined to the bladder, the treatment is of little permanent value.

Results of Local Anesthesia for Prostatectomy. (Résultats de l'anesthésie locale de la Prostatectomie). F. LEGUEN. *Journal D'Urologie*, 1914-1915, Volume VI, No. 6.

The author reports excellent results with local anesthesia in 150 prostatectomies. The patient receives a preliminary injection of 0.01 centigram morphine and the bladder is filled with 40 to 50 cc. of anesthesia solution, i. e., ½% novocaine solution to which five drops of adrenalin (1:1000) is added for every 100 cc.

The paravesical areas and the space of Retzius are carefully injected, then the bladder wall itself. When the bladder is opened two fingers of the left hand are introduced, facing the pubis to guide long, curved needles through which the prostate is infiltrated in at least five or six places. Enucleation is now simple and carried out with no pain.

About 250 to 300 cc. of solution are required. There are no immediate or remote effects.

The United States has joined the world war for democracy! YOUR help is needed.